



# **Integrating Compaq Insight Manager with Computer Associates Unicenter TNG**

TechNote

**Second Edition (March 1999)  
Part Number 276463-002  
Compaq Computer Corporation**

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## About This Guide

This guide is designed to be used as step-by-step instructions for installation, and as a reference for operation, troubleshooting, and future upgrades.

## Text Conventions

This document uses the following conventions to distinguish elements of text:

<b>Keys</b>	Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously.
USER INPUT	User input appears in a different typeface and in uppercase.
<i>FILENAMES</i>	File names appear in uppercase italics.
Menu Options, Command Names, Dialog Box Names	These appear in initial capital letters.
COMMANDS, DIRECTORY NAMES, and DRIVE NAMES	These always appear in uppercase
Type	When you are instructed to <i>type</i> information, type the information <b>without</b> pressing the <b>Enter</b> key.
Enter	When you are instructed to <i>enter</i> information, type the information and then press the <b>Enter</b> key.

## Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.



**WARNING:** Indicates that failure to follow directions in the warning could result in bodily harm or loss of life.

---



**CAUTION:** Indicates that failure to follow directions could result in damage to equipment or loss of information.

---

**IMPORTANT:** Presents clarifying information or specific instructions.

---

**NOTE:** Presents commentary, sidelights, or interesting points of information.

## Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

### Compaq Website

The Compaq website has information on this product as well as the latest drivers and Flash ROM images. You can access the Compaq website by logging on to the Internet at <http://www.compaq.com>.

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## Telephone Numbers

For the name of your nearest Compaq Authorized Reseller:

In the United States, call 1-800-345-1518

In Canada, call 1-800-263-5868

For Compaq technical support:

In the United States and Canada, call 1-800-386-2172

For Compaq technical support phone numbers outside the United States and Canada, visit the Compaq website at:

<http://www.compaq.com>.

## ***Chapter 1***

# **About This TechNote**

This TechNote provides Compaq systems management integration guidelines for the Unicenter TNG management suite from Computer Associates International.

Customers who want to integrate the functionality of Compaq Insight Manager into the Unicenter TNG environment may use this document to walk through the installation and configuration of the integration modules. The integration feature summary outlines the integration points.

This document is intended for System Administrators who have a working knowledge of Unicenter TNG and Compaq Insight Manager.

This TechNote provides the following:

- Overview of the CA Unicenter product.
- Discussion of the Integration points between Unicenter TNG and Compaq Insight Manager.
- Installation information for the Unicenter TNG policy definitions for Compaq Insight Manager.
- Sample Management Solutions using Unicenter TNG and Compaq systems and Compaq Insight Manager.
- Product Distribution information for the TNG Integration Module for Compaq Insight Manager.

## Chapter Organization

The chapters in this Compaq TechNote contain the following information:

**Chapter 1** – Introduces the TechNote with a brief summary of each chapter and additional resources you can use to find more information about network management, and the integration environment used.

**Chapter 2** – Provides a brief overview of Computer Associates Unicenter TNG.

**Chapter 3** – Provides a description of the integration features in the Unicenter TNG Integration Module for Compaq Insight Manager.

**Chapter 4** – Discusses pre-installation considerations as well as hardware and software requirements for integrating Compaq Insight Manager with Unicenter TNG.

**Chapter 5** – Discusses the integration areas between Compaq Insight Manager and Unicenter TNG. Installation of the integration is also covered here.

**Chapter 6** – Describes how the integration functions with the various components of Unicenter TNG.

**Chapter 7** – Discusses the integration of Compaq Insight Manager with the CA Unicenter TNG Framework.

**Chapter 8** – Provides management solution scenarios that discuss some ways the integration of Compaq Insight Manager and Unicenter TNG may be used.

**Chapter 9** – Discusses distribution and support of the Unicenter TNG Integration Module for Compaq Insight Manager.

**Appendix A** – Provides information on how to get individual Compaq TechNotes, including location of website, pricing information, toll free telephone numbers, and a list of the latest available TechNotes.

**Appendix B** – Provides a listing of the Compaq traps that are currently included in the CA Unicenter TNG Integration Module for Compaq Insight Manager.

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## Additional Resources to Use

The following list of resources, used throughout this TechNote, provides additional information on Compaq Insight Manager and Unicenter TNG.

- Compaq Management CD (The Compaq Management CD is included with all Compaq Server Products). This CD contains the:
  - *Compaq Insight Manager Online User Guide* - This document explains how to install, configure, and use Compaq Insight Manager.
  - *Compaq Server Management Agents for Microsoft Windows NT User Guide* - This document explains how to install, use and troubleshoot Compaq Server Management Agents for Microsoft Windows NT.
- *Computer Associates Documentation Set*

Computer Associates provides an extensive library of documentation for the installation, configuration, administration, and operation of Unicenter TNG. "Books Online" is a collection of many useful documents, some of which are listed below. The following documents contain reference information relevant to this TechNote:

- *TNG Concepts Guide*  
Provides an overview of the TNG paradigm and infrastructure, Business Process Views, agent extensibility, TNG Enterprise Management, and TNG Software Development Kit.
- *TNG Message Guide*  
Outlines the system messages for the TNG WorldView and Enterprise Management modules.
- *TNG Reference Guide*  
Provides information about all TNG executables, configuration files, environment variables, and Enterprise Management shell scripts.
- *TNG Release Guide*  
Provides a release summary for TNG WorldView, Agent Technology, and Enterprise Management.

#### 1-4 About This TechNote

- *Windows NT Agent Configuration Guide*  
Contains information for installing, configuring, and administering the TNG NT system agent, and the NT system agent MIB.

- Computer Associates Home Page:

<http://www.cai.com>

- Compaq Home Page:

<http://www.compaq.com>

Additional information on Compaq Insight Manager and other Compaq products is available through the Compaq Home Page.

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## **Chapter 2**

# **Unicenter TNG Overview**

### **Introduction**

Unicenter TNG from Computer Associates International is an enterprise and systems management product suite designed to manage systems, networks, databases, and applications. Each of the modules in Unicenter TNG (The Next Generation) addresses a different aspect of enterprise management.

The Unicenter TNG architecture follows the agent/manager paradigm. Unicenter TNG agents can be installed on managed nodes for monitoring those systems and reporting performance, event, and fault-management information to the Unicenter TNG console. Integration with Compaq Insight Manager adds another level of management to the Unicenter TNG list of capabilities; the ability to monitor hardware-level components. The Compaq Management Agents complement the functionality provided by the Unicenter TNG NT System Agent, giving the administrator a much more in-depth and complete view of managed systems.

### **Auto Discovery**

Unicenter TNG first requires that the administrator initiate a Network Discovery so TNG can identify the machines it needs to monitor. The Network Discovery is simple and straightforward to use. It discovers all IP and IPX devices as defined in the discovery configuration. The initial discovery process does not include the agent discovery; the domain manager finds the Unicenter TNG NT System Agent and the Compaq Management Agents. The TNG Integration Kit for Compaq Insight Manager defines what the Compaq Management Agents look like, then the Compaq Management Agents are recognized during the discovery, just as the Unicenter TNG NT System agent is recognized. All agents known to TNG are discovered during the Auto Discovery Process and are then displayed from the Unicenter Console in either the 2D or 3D modes.

## **Monitoring Views**

Once the Auto Discovery process is complete and the administrator displays the Unicenter TNG 2D or 3D map, there are two different types of views that the administrator can use to see the status of a monitored system: the Node View and the Agent View. The integration with Compaq Insight Manager has integration points in both of these views.

The rest of this chapter describes the Node View and the Agent View. The special integration points with Compaq Insight Manager are discussed in Chapter 3, "Integration Feature Summary."



## Agent and Node View

The Agent View is shown in Figure 2-1. The Node View is shown in Figure 2-2.

The Agent View, whether it is for the Unicenter TNG NT System Agent or the Compaq Management Agents, is a view of that agent only.

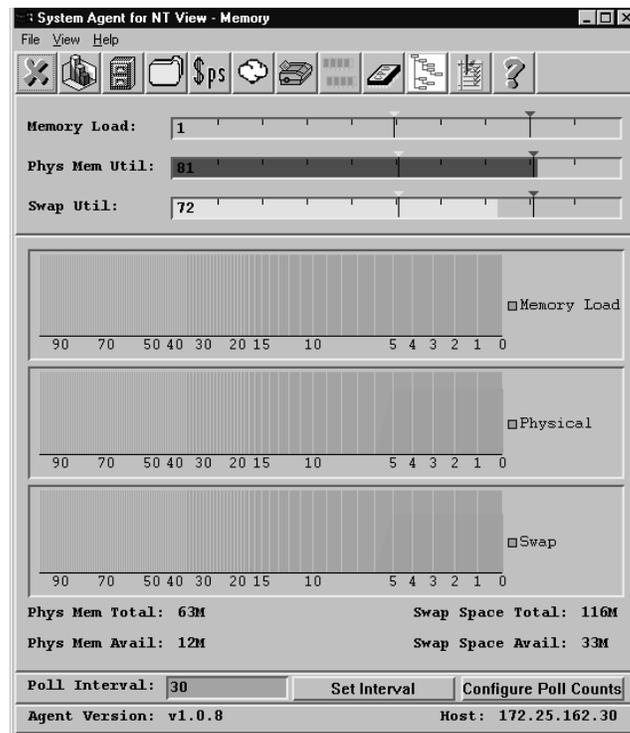


Figure 2-1. Sample Agent View for Unicenter TNG NT System Agent

## 2-4 Unicenter TNG Overview

The Node View provides a collective view of the entire managed node and all the agents.

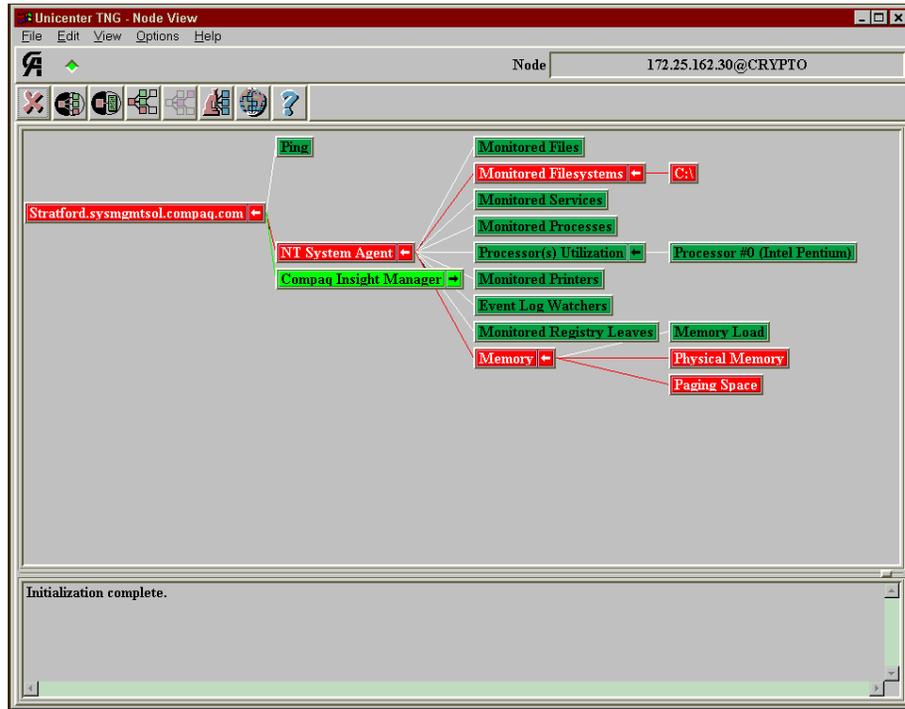


Figure 2-2. Node View Window showing a sample Unicenter TNG System Agent View

## Unicenter TNG NT System Agent

Like many other enterprise and system management systems, Unicenter TNG has an agent for managing NT systems. It is called the Unicenter TNG NT System Agent. This agent can be configured with thresholds to alert the administrator when these thresholds are violated. There are nine components that the Unicenter TNG NT System Agent monitors:

- File Systems
- Files
- Processes
- Services
- Printers
- Memory
- Processor Utilization
- NT Registry
- NT Event log

### File Systems

The Unicenter TNG NT System Agent monitors file systems, as identified by the administrator, for total utilization and growth. Once thresholds are configured, the Unicenter TNG NT System Agent sends an SNMP trap to the Unicenter TNG Console, alerting the administrator when these thresholds are exceeded.

The administrator sets warning and critical thresholds for the space utilization of the file system. Also, the rate of growth can be monitored. Unicenter calculates the growth rate by comparing the size of the file system between polls. If the growth rate exceeds the established growth thresholds, an SNMP trap is then sent to the console.

## **Files**

The Unicenter TNG NT System Agent can be configured to monitor files for size, growth, and timestamp changes.

The file size is monitored based on warning and critical thresholds specified by the administrator. Growth is calculated using the size on successive polls. A file's timestamp can be monitored to detect whether changes are made to the file. When a timestamp change occurs, an administrator defined warning or critical alert can be generated. This is forwarded to the Unicenter TNG Console. The overall status of the file is the highest severity of the three file conditions: size, growth, and timestamp status.

## **Processes**

The Unicenter TNG NT System Agent can be configured to monitor for the existence of critical processes as defined by the administrator. In addition, the number of instances and the number of threads can be monitored. Thresholds are established for the allowable number of instances of each critical process being monitored. Exceeding these thresholds is detected by the agent, and in turn results in a trap being sent to the console. At the most detailed level of monitoring for critical processes, the administrator can establish thresholds on the number of threads of the critical processes. The overall status of each monitored process is the highest severity of all of these aspects being monitored.

## **Services**

The Unicenter TNG NT System Agent can monitor NT services as specified and configured by the administrator. Once the administrator identifies which critical services need to be managed and then configures the agent to manage them, the Unicenter TNG NT System Agent will detect if a service is active or inactive. When a service's status changes, an alert is then sent to the Unicenter TNG Console.

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## Printers

The availability of a printer (local, not network) and the length of the print queue can be monitored. Alerts are generated when a printer changes status from available to unavailable, and also when the number of jobs in the print queue exceeds the threshold. The overall status of the printer is a reflection of the highest severity of all the aspects of the printer being monitored.

## Memory

Three aspects of the systems memory can be monitored:

- Overall memory load
- Physical memory
- Swap space

In addition to specifying utilization thresholds for each of these areas of memory, the administrator can specify how many successive polls returning values that exceed the threshold are required to generate an alert. This allows the administrator to configure the thresholds and avoid short-lived spikes of memory utilization.

## Processors

Just as the administrator can configure thresholds for monitoring a system's memory, he/she can configure monitoring of the processor utilization. Also, the administrator can specify how many successive polls over the threshold are required to generate an alarm. It is important to avoid generating alarms for spikes of usage, as opposed to persistent usage.

## **NT Registry**

The Unicenter TNG NT System Agent can be configured to monitor any number of important Registry value entries. Integer values can be monitored for a simple, absolute change, or monitored for a change in value against the warning and critical thresholds. String values can be monitored for a change in contents. When a Registry value entry changes or exceeds a threshold, an SNMP trap is sent to the Unicenter Console.

## **NT Event Log**

The Unicenter TNG NT System Agent can be configured to monitor the Application, System, and Security event logs. These logs are monitored for the existence of administrator defined events. Event Log monitoring can be used for general auditing purposes or for monitoring for the existence of a specific event. SNMP traps are generated and sent to the Unicenter TNG Console when a warning or critical event occurs.

## **Event Browser**

Unicenter TNG has an event browser window to allow the administrator to view all the warnings and alarms that are initiated by the Compaq Management Agents and the Unicenter TNG NT System Agent. This event browser can be initiated from the Node View window.

---

## 2D and 3D Maps

Unicenter TNG offers two styles of maps: a 2D-map view (shown in Figure 2-3), and a 3D-map view (shown in Figure 2-4).

Functionality for the 3D-map is the same as the 2D-map. When TNG is started for the 3D-map, the 2D-map is brought up and processed in the background. The core 2D-map functionality drives the 3D-map; the only difference is the presentation layer for the 3D effect.

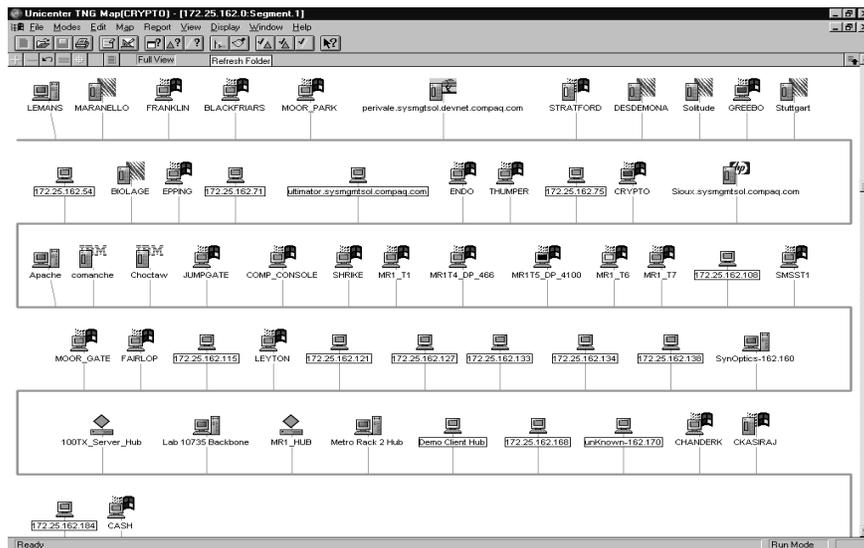


Figure 2-3. Unicenter TNG 2D map

2-10 Unicenter TNG Overview

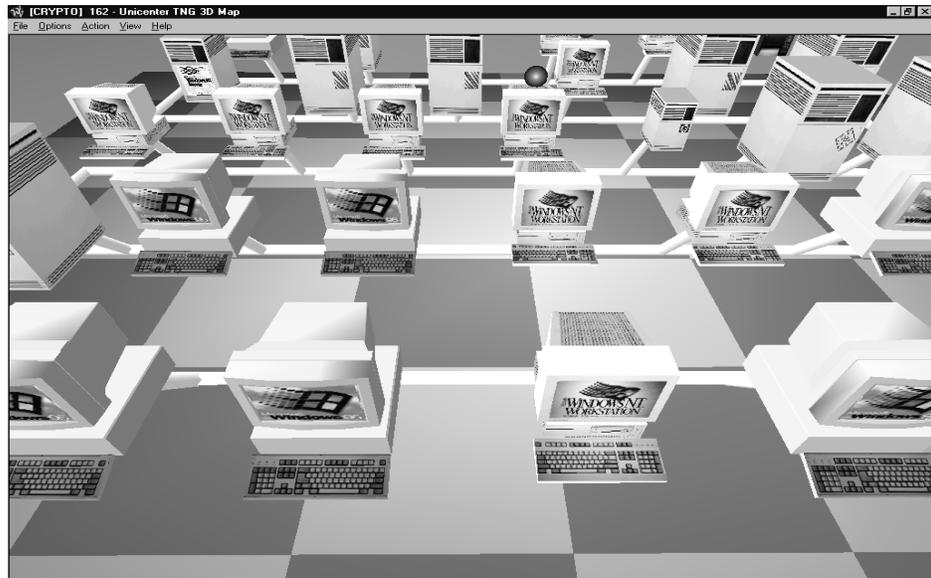


Figure 2-4. Unicenter TNG 3D map



## **Chapter 3**

# **Integration Feature Summary**

To complement all the operating system and application-level parameters monitored by Unicenter TNG, hardware-level component information for Compaq systems can be monitored and managed using the Unicenter TNG Integration Module for Compaq Insight Manager. This integration module monitors and manages the Compaq Management Information Base (MIB) variables, which are updated and maintained by the Compaq Management Agents. This data is also available from the Compaq Insight Manager console. The following categories are represented in the Compaq MIB and can be viewed graphically on the Node View:

- Intelligent Drive Array
- Standard Equipment
- System Health
- System Information
- SCSI Storage System
- Operating System Information
- Uninterruptible Power Supply
- Threshold Management

The Unicenter TNG Integration Module for Compaq Insight Manager is designed to manage hardware features that are specific to Compaq servers and workstations. Although Compaq Workstation, Desktop, and Portable Management Agents can be discovered and viewed from the Unicenter TNG console, there is a very limited amount of data that is relevant to these hardware platforms. The Unicenter TNG Integration Module for Compaq Insight Manager is not intended for management of Compaq workstations, desktops, and portables at this time.

**NOTE:** Professional Workstation models 5000, 5100, 6000, and 8000 use the Compaq Server Management Agents and are supported by the integration.

### 3-2 Integration Feature Summary

The Unicenter TNG Integration Module for Compaq Insight Manager includes:

- Creation of the 'InsightManager' class inside the Unicenter TNG repository, as shown in Figure 3-1.

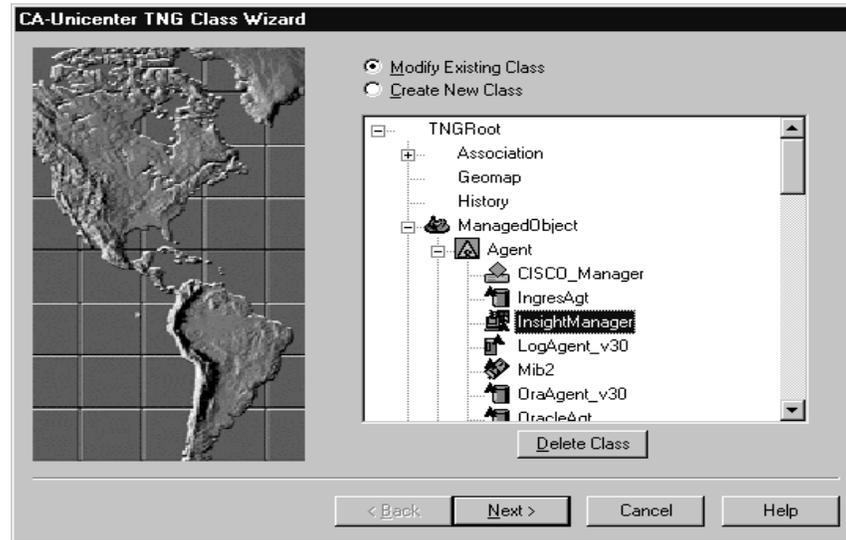


Figure 3-1. Window showing the Insight Manager Sub Class under the Agent Class

- Discovery and population of Compaq Management Agents (Version 3.00 and greater) into Unicenter TNG's repository.

- The detection and update of current statuses discovered by Compaq Management Agents. This is accomplished with the use of policy files provided with the integration.

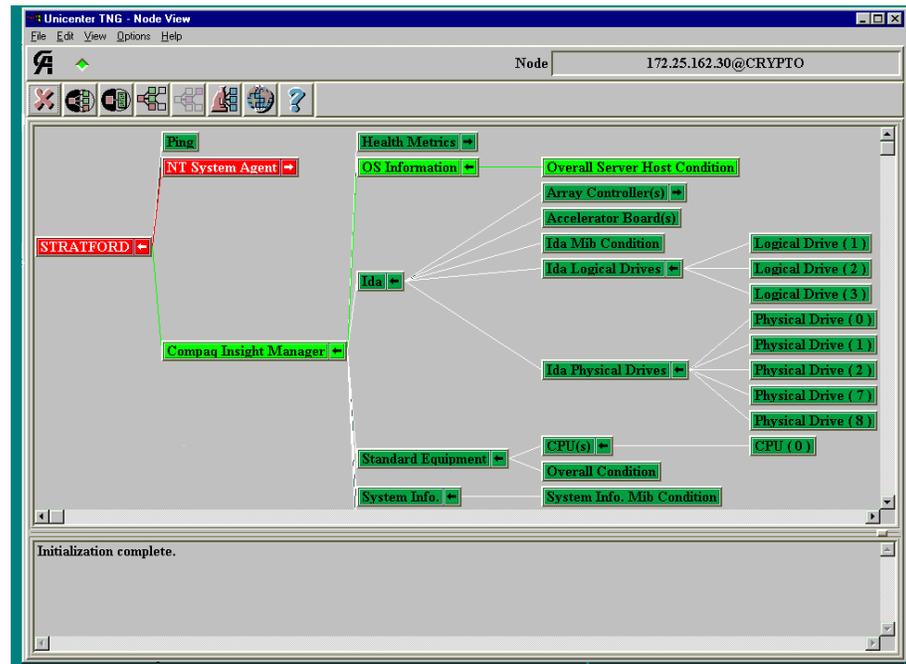


Figure 3-2. Node View Window showing some of the Compaq MIBs



- Event notification inside Unicenter TNG's Enterprise Management Console, as shown in Figure 3-4.

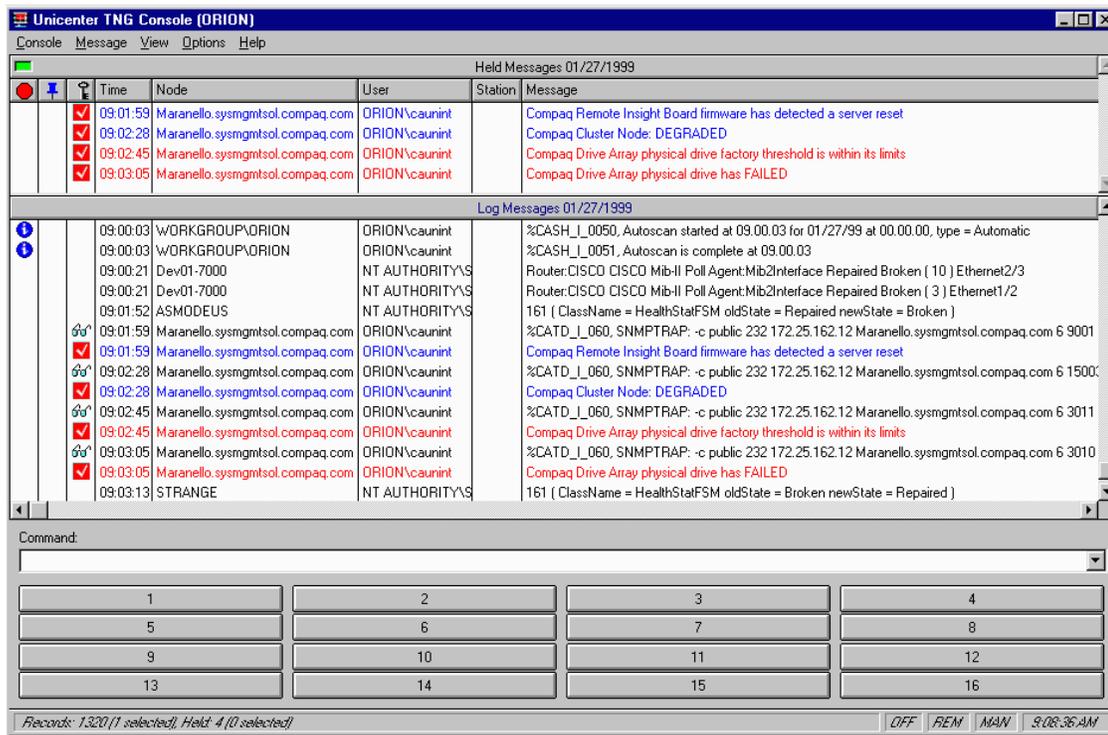


Figure 3-4. Unicenter TNG Enterprise Management Console Log

### 3-6 Integration Feature Summary

- Launch, in context, of Compaq Insight Manager.
- Launch of the browser to the Web-enabled Compaq Management Agents, as shown in Figure 3-5.

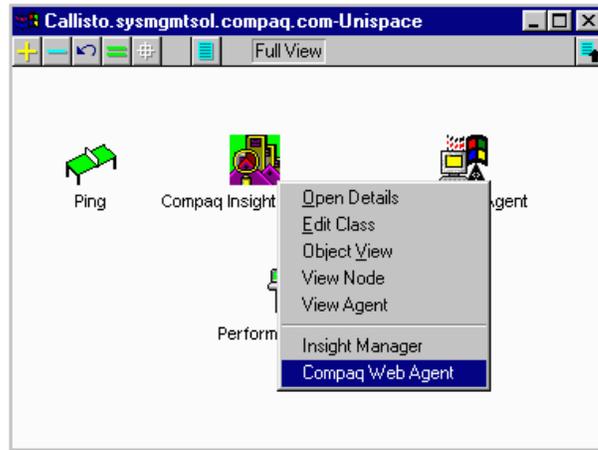


Figure 3-5. Compaq Management Agents showing launch command for Compaq Insight Manager Console and Web-enabled agents

- Compaq Insight Manager Agent View showing detailed information on hardware-level system status, as shown in Figure 3-6.

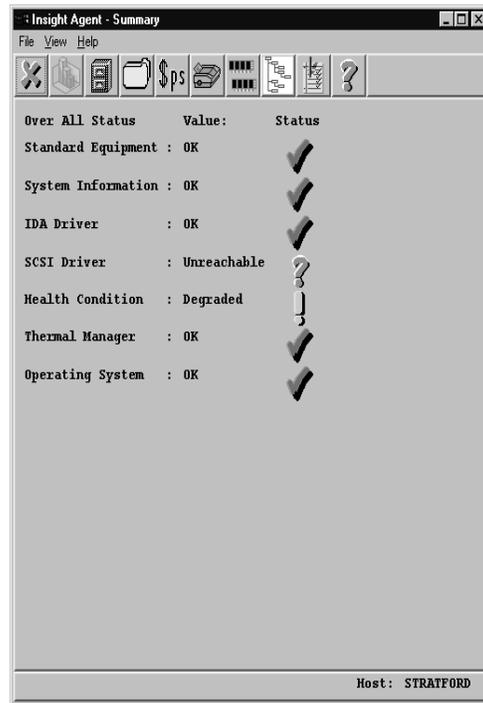


Figure 3-6. Agent View of Compaq Management Agents showing System Summary Status

## Chapter 4

# Pre-Installation Requirements

The recommended hardware and software requirements **Error! Bookmark not defined.** for supporting the Unicenter TNG integration with Compaq Insight Manager are based on testing performed in a controlled lab environment. The test environment included the following:

### Console Requirements

- Pentium II-based system or better
- 128-MB RAM minimum
- 4-GB hard disk with at least 1-GB free disk space
- Windows NT Workstation 4.0 with Service Pack 3 installed
- Graphics card that supports OpenGL 3D acceleration if the 3D maps will be used. Cards tested by Compaq include:
  - ELSA Gloria-L
  - Diamond Fire GL 4000
  - Compaq PowerStorm 300 3D
- CA Unicenter TNG, release 2.0, Genlevel 209703 or later installed and running with the following components installed:
  - Unicenter TNG WorldView
  - Unicenter TNG Agent Works
  - Unicenter TNG Enterprise Management
- SNMP agent installed and running
- Compaq Insight Manager 3.x console application installed and running for in-context launch support
- Microsoft SQL Server 6.5 or higher for the Unicenter TNG Object Repository and the Enterprise Management databases
- Microsoft SQL Server database sort order set to **Dictionary Order, Case Sensitive**

## 4-2 Pre-Installation Requirements

### Monitored Servers

- Intel Pentium-based system or better
- 64-MB RAM
- Running one of the following operating systems:
  - Windows NT 3.51 or later
  - Windows 95 (desktops and portables only)
  - Windows 98 (desktops and portables only)
  - NetWare 3.x or later
- SNMP agent installed and running
- Compaq Server Management Agents version 3.0 or later installed and running
- Web-enabled Compaq Server Management Agents version 4.01 or later installed and running (optional)
- 49-MB hard disk space for the Unicenter TNG NT System Agent (optional)

**NOTE:** This integration has been tested with version 3.0 to version 4.01 of the Compaq Server Management Agents.

---

## Minimum Recommended Hardware Requirements

The minimum recommended hardware requirements for the Unicenter TNG console based on Compaq experience with the product in a lab environment are listed below. They are higher than the hardware requirements recommended in the Unicenter documentation to improve system performance:

- Memory – 128-MB
- Processor – Single Intel-based Pentium II - 266 MHz or greater CPU (Compaq Professional Workstation 5100 or greater)
- Disk
  - Agent – 43-MB
  - Console – 149-MB
    - Enterprise Management: 34-MB
    - WorldView: 115-MB
  - Documentation (Books Online) – 34-MB
- Monitor – 17-inch (or larger) color monitor
- Video Graphics Card
  - Elsa Gloria M/L 3D Graphics Controller, 10-MB Video Memory
  - Diamond Fire GL 4000 Graphics Controller, 10-MB Video Memory
  - Compaq PowerStorm 300

## **Supported Hardware and Software**

### **Compaq Insight Manager**

- Compaq Insight Manager 3.00 or greater
- Compaq Server Management Agents on the following platforms:
  - Microsoft Windows NT Server and Workstation 3.51 or greater
  - Novell NetWare 3.12 or greater

### **Unicenter TNG**

- Unicenter TNG WorldView - Release 2.0 (Genlevel 209703 or greater)
- Unicenter TNG AgentWorks - Release 2.0 (Genlevel 209703 or greater)
- Unicenter TNG Enterprise Management - Release 2.0 (Genlevel 209703 or greater)

### **Microsoft SQL Server**

Version 6.5 or greater

### **Compaq Systems**

- Compaq Professional Workstations (Models 5000, 5100, 6000, and 8000).
  - Compaq Prosignia and ProLiant Servers
-

## Pre-Installation Configuration

### Video Graphics Controllers

The ELSA Gloria 3D Graphics Controller, the Diamond Fire GL 4000 Graphics Controller, and the Compaq PowerStorm 300 Graphics Controller should be configured to support the graphics requirements of Unicenter TNG. These settings are configured under the Control/Display Preferences. Tables 4-1, 4-2, and 4-3 outline the recommended settings for these controllers.

**Table 4-1**  
**ELSA Gloria M/L 3D Graphics Settings**

Category	Setting
Enable 3D Extensions	Yes
DMA Buffers	8
DMA Buffer Size	64 KB
Texturing Quality	50%
Double Buffer	Yes
GDI in single buffered modes	Yes
Enable Fast Clear Planes	Yes
Graphics Driver Version	5.22.00.0142
OPEN_GL Driver Version	2.00.10.0015
Resolution	1024x768

Common problems with the video options are due to incorrect DMA buffer settings or DMA Buffer size settings. If there are video compatibility problems, check these two settings first.

**4-6** *Pre-Installation Requirements*

---

**Table 4-2**  
**Diamond Fire GL 4000 Graphics Settings**

<b>Category</b>	<b>Setting</b>
Graphics Driver Version	1.2.27.7
Configuration Profile	Default
Frame Buffer Options	
Gamma Correction	No
Visual 4-bit Overlay Planes	No
Stencil Planes	Yes
Texel 32-bit	Default
Minimize Tearing	No
Forced Hardware Cursor	Yes

---

**Table 4-3**  
**Compaq PowerStorm 300 3D Graphics Settings**

<b>Category</b>	<b>Setting</b>
Graphics Driver Versions	2, 2, 1107, 1219, 4.0.0
Configuration Profile	Default
Frame Buffer Options	
Gamma Correction Visuals	No
Visual 4-bit Overlay Planes	No
Alpha Planes	No
Stencil Planes	Yes
Texel 32-bit Default	Yes
Minimize Flicker	No
Forced Hardware Cursor	Yes
Report 16-bit when 12-bit	No
Enable Swap Copy	No

## Other Graphics Settings

In some cases, “snow” may be seen on the background textures when using the Unicenter TNG 3D Worldview. For example, the systems on a LAN segment may be shown correctly, but the background they are on may contain “snow.” In some cases, this can be corrected by modifying the **Expand Distance** variable in the class definition of each affected class (IP\_Network, IP\_Subnet, and so on). To make these changes, perform the following steps:

1. Right-click on the object in the 2D map and select Edit Class.
2. Select the 3D Icon Tab.
3. Select the Distances tab.
4. Set the Expand Distance variable to 0.0.
5. Click **OK** to save the changes.
6. Click **Yes** then **OK** again to confirm and save the changes to the class definition.
7. Repeat these steps for any other class of object showing the “snow” on the 3D map.
8. Exit and restart the 3D Worldview for the changes to take effect.

## Microsoft SQL Server 6.5

SQL Server 6.5 must be installed prior to the installation of Unicenter TNG. Follow the standard installation for SQL Server. The only requirement for TNG is to enable the **Sort Order** option for **Dictionary Order, Case-sensitive**.

---

## AgentWorks Service Shutdown

The CA Unicenter AgentWorks services should be allowed sufficient time to shutdown when powering off or restarting the management console. To allow this, you may want to increase the timeout for waiting to kill a service under Microsoft Windows NT from the default of 20 seconds on the management console.

If this is not specified, then the AgentWorks services should be shutdown manually (AWSERVICES STOP from the command prompt) before shutting down or restarting the system.

This value can be changed by editing the following registry key with REGEDT32:

HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Control\WaitToKillServiceTimeout

Default setting 20000 (20 seconds) - Change to 90000 (90 seconds) by double-clicking on the WaitToKillServiceTimeout and entering the new value.

## Chapter 5

# Installation and Integration

The Unicenter TNG Integration Module for Compaq Insight Manager covers three distinct areas of integration:

- Unicenter TNG Enterprise Management Integration
- Unicenter TNG Agent Technology Integration
- Unicenter TNG Worldview Integration

## Unzipping the Integration Files

The integration module provided by Computer Associates contains three directories that hold different pieces of the integration:

- *CPQEM*
- *CPQWV*
- *CPQUSD*

**NOTE:** Although included in the integration kit, the software delivery scripts (the CPSUSD directory) are not presently supported.

If you are using **pkunzip.exe** to unzip the integration files, be aware of the following items:

Remember to use the “-d” option for pkunzip (or select “Use Folder Names” when unzipping with WinZip). You can unzip these files into your temp directory.

If you are running an older version of **pkzip.exe** that only gives you the "8.3" naming format and does not support extended file names, you must recreate three file names. After you have unzipped the files, perform the following:

1. Rename browser.ins to browser.insightmanager
2. Rename insightm.cnf to insightmanager.cnf
3. Rename insightm.dat to insightmanager.dat

## Unicenter TNG Enterprise Management Integration

### Messages and Message Actions

The Enterprise Management Integration is comprised of the files used to populate the Event Management databases with pre-defined messages and message actions for Compaq Management Agent SNMP trap messages. These files are ASCII text files with a ".txt" extension. All these files are located in the *CPQEM* directory.

The CPQLOAD.BAT batch file located in the *CPQEM* directory and can be used to load all the files at once. This batch file loads the message records into the database on the machine executing the command.

To install these files individually, independent of the batch file, the following command can be used:

```
cautil -s=<machine_name_where_DBs_reside> -f <file_name>
```

**NOTE:** When loading the message records, you may see the error message "Line No 623, No Such File or Directory. " This error occurs when the size of the text file containing the message record definitions is too large. If this error occurs:

- Break the text files up into smaller files and then load the message records or,
- Get the updated version of CAUTIL.EXE from Computer Associates.

"Appendix B" lists the message records included in the Enterprise Management Integration. This list was current as of the publication of this TechNote. New message records may have been added.

---

## Unicenter TNG Agent Technology Integration

### Policy definition for Agent status detection

The policy definition for the Compaq Management Agents is used by the Unicenter TNG Agent Works component. Status changes are detected by polling the Compaq Management Agents. Once the polling has gathered information on the agent, this information is translated into policy. This policy can be viewed through the Unicenter Event Management Console in real-time. In addition, this policy sets the status for each of the discovered Compaq Management Agents inside the Unicenter TNG Repository.

All files for the agent technology integration are located in the *CPQWV* directory.

To install the policy definition for Compaq Insight Manager, perform the following steps:

1. Add the following line to the **gwfilter.dat** file in the `%AGENTWORKS_DIR%\SERVICES\CONFIG\AWS_WVGATE` directory (`%AGENTWORKS_DIR%` is the home directory of the Unicenter TNG Agentworks sub system):  
  
**Agent:InsightManager:Compaq|InsightManager|**
2. Add the following line to the **aws\_nsm.cfg** file in the `%AGENTWORKS_DIR%\SERVICES\CONFIG\AWS_NSM` directory:  
  
**LOAD aws\_nsm/dm/InsightManager.cnf**
3. Add the filename **InsightManager.dat** as the last argument in the **classld.bat** file in the `%AGENTWORKS_DIR%\SERVICES\TOOLS` directory.
4. Add the following line to the **install\_mibs.bat** file in the `%AGENTWORKS%\SERVICES\BIN` directory immediately before the line “**goto finish script**”:  
  
`CALL %AGENTWORKS_DIR%\services\bin\install_cpqmibs.bat`

## 5-4 Installation and Integration

5. Run **insight.bat** with the location of the Compaq integration directory, the current Worldview path, and the current agent technology path. This script also loads the TNG Worldview integration described in the next section.

Ex. `c:\cim_tng\cpqww\insight.bat c:\cim_tng\cpqww c:\tng c:\tng`

## Unicenter TNG Worldview Integration

### Class definition for Unicenter TNG Repository

The class definition is configured inside a file named INSIGHT.DAT. All the properties, menus, statuses, and methods for the Compaq Management Agents class are defined here. To load this integration outside of the provided script, switch to the directory where INSIGHT.DAT is located and issue the following command:

**Awwvfg -c insight.dat**

All files for the WorldView integration are located in the *CPQWW* directory.

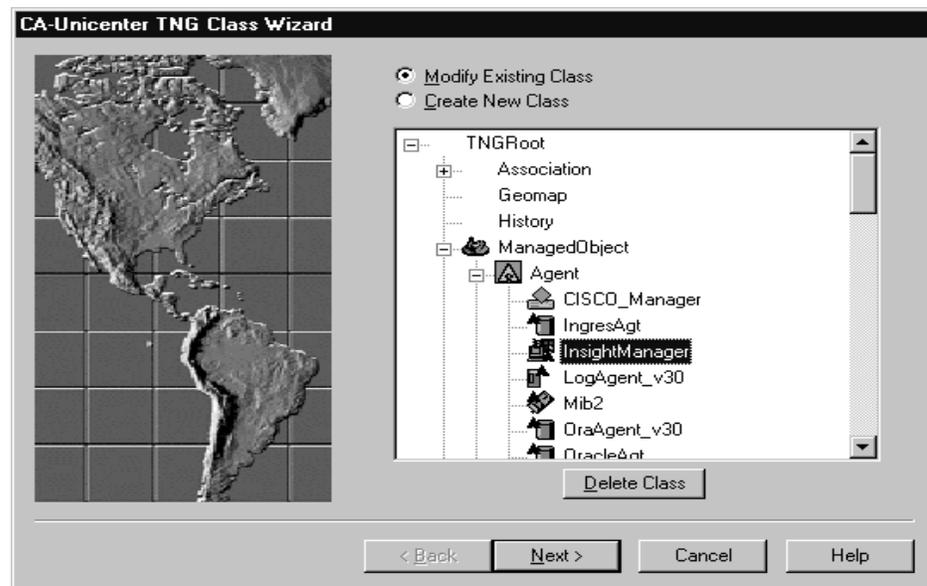


Figure 5-1. Window showing the Insight Manager Sub Class under the Agent Class

**NOTE:** This loads the entire definition. If this class is already defined, you will not receive an error message, even though the command has done nothing. It will not destructively overlay the previous installation of this class. If it is necessary to reload this class, first delete the class using the Unicenter TNG Class Wizard. The class 'Insight Manager' is found under the Agent subclass as shown in Figure 5-1.

## **Method for Compaq Insight Manager Launch in Context**

This capability is automatically configured when the Compaq Insight Manager class is installed (make sure the Path environment variable contains the location of the Compaq Insight Manager executable). It allows the administrator to launch Compaq Insight Manager in context for those systems that were discovered with the Compaq Server Management Agents.

## **Method for Launch to Web-enabled Compaq Server Management Agents**

This capability is automatically configured when the Compaq Insight Manager class is installed. It allows the administrator to launch Microsoft Internet Explorer to the Web-enabled Compaq Server Management Agents on the selected system.

**NOTE:** Information on specifying a different browser is given in the next chapter.

## **Unicenter TNG and Compaq Insight Manager Integration Notes**

### **Rebuilding your repository:**

If at anytime you rebuild your repository, you must complete the installation steps to reinstall your integration.

### Repository Error Code: 22

When trying to launch Insight Manager from the 2D map, you receive a Repository Error Code 22. Compaq Insight Manager cannot be launched because the path of **CIM.EXE** is not defined in the environment. You must give a fully qualified path to launch Compaq Insight Manager.

1. Start Class Wizard, and select **Modify Existing Class**.
2. Choose the class ManagedObject:Agent:InsightManager.
3. Click **Next** three times to display the Menu Dialog shown in Figure 5-2.

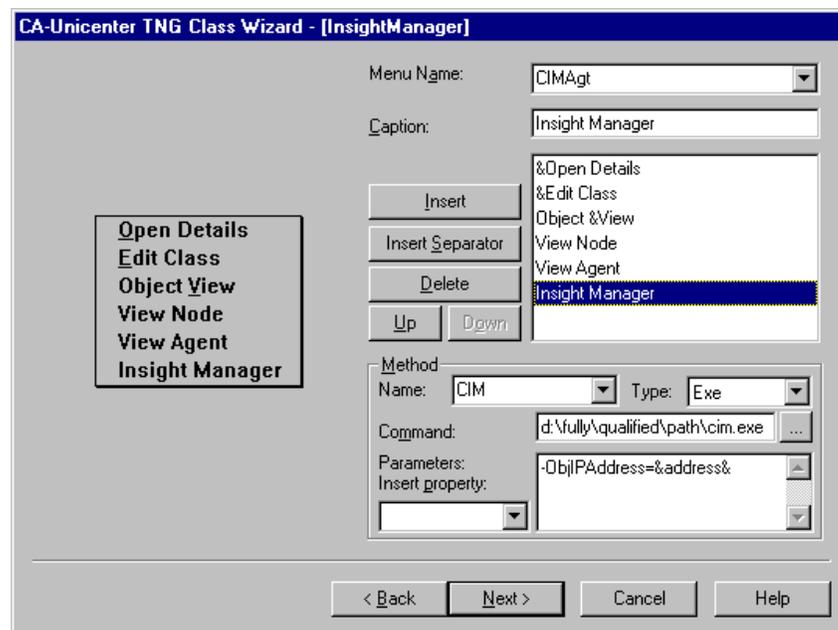


Figure 5-2. Unicenter TNG Class Wizard

4. Choose **InsightManager** from the list.
  5. Enter the fully qualified path of cim.exe in the **Command** field in the **Method** Frame.
  6. Click **Next**. You are prompted to save changes.
  7. Click **Next** until you get to the last dialog box.
  8. Click **Finish** to exit Class Wizard and save all changes.
-

### **MIB Browser – Variables Not Found**

When using the **mibbrowse** utility, there may be some SNMP variables that are '**NOT FOUND**'. This is an indication that your agent does not implement these SNMP variables.

## **Chapter 6**

# **Using the Integration**

### **How the Integration Works**

The Compaq integration is defined in the policy definition for Compaq Insight Manager. This definition is specifically kept in two files:

- Insightmanager.cnf
- Insightmanager.dat

The policy definition for the Compaq Management Agents is used by the Unicenter TNG AgentWorks component. Status changes are detected by polling the Compaq Management Agents. Once the polling has gathered information on the agent, this information is translated into policy. Note that traps also trigger policy. This policy can be viewed through the Unicenter Event Management Console in real-time. In addition, this policy sets the status for each of the discovered Compaq Management Agents inside the Unicenter TNG Repository.

### **Network Discovery**

The first process that must take place is the discovery of all the IP and IPX addressable devices on your network (as defined in the discovery configuration). First, determine the subnets you want discovered by Unicenter TNG and configure this into the Auto Discovery windows under TNG WorldView. When determining whether the discovery should be automated or initiated manually by the administrator, keep in mind that network activity and traffic in an enterprise is often carefully monitored and controlled.

To configure the auto discovery settings, start the auto discovery program under TNG WorldView. Under advanced features, enter the appropriate subnet filter and subnet mask. If you have already completed an initial auto discovery and want to rediscover some subnets, use the options under Subnet Management. In this window, you can "move" subnets from the left panel to the right panel to add them to the discovery list.

## **6-2** *Using the Integration*

Once you have finished listing the subnets for discovery, start the discovery process to update the Unicenter TNG map of your subnet(s).

**NOTE:** Use the **Full Details** option on the discovery.

### **TNG Maps**

Once your network devices have been discovered, the managed nodes discovered through the TNG discovery appear on both the 2D and 3D maps. Both the Compaq Management Agents and the Unicenter TNG NT System Agent are recognized during the discovery process; icons that represent each agent appear in a window logically below the machine icon. You can display this window by double-clicking the machine in the 2D or 3D-map.

---

## Node View

The hierarchical tree display of the Compaq Insight Manager and Unicenter TNG agents is referred to as the Node View. (See Figure 6-1). The Node View is available as a selection when right-clicking on any agent icon. You can expand or "fan-out" the nodes to display lower level objects. This drill-down capability allows the user to view Compaq Insight Manager MIB icons at the variable level.

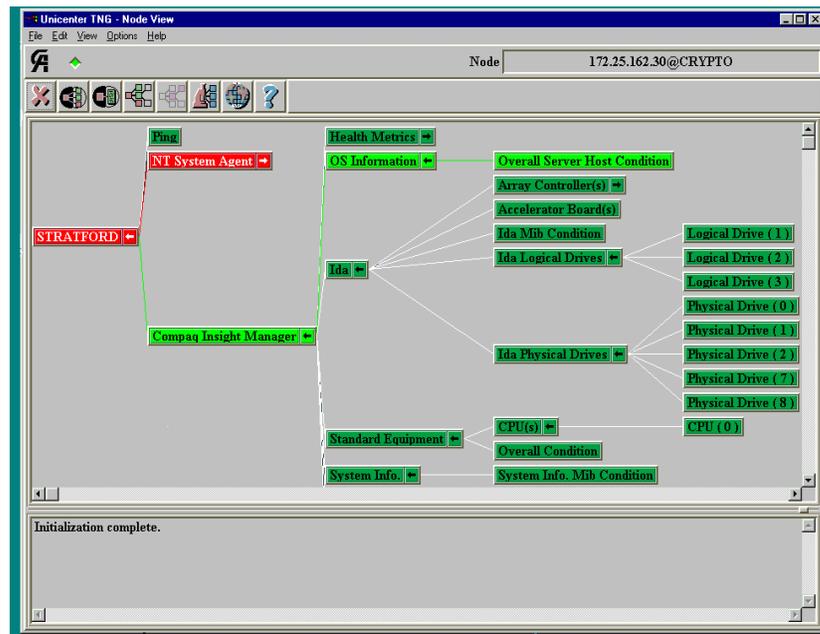


Figure 6-1. TNG Node View showing expanded Compaq Insight Manager objects

## 6-4 Using the Integration

All icons on the Node View are color-coded to reflect the node's current status (See Table 6-1).

---

**Table 6-1**  
**Color Mapping for Node View Status**

Color	Status	Description
Red	Broken	The object (or one or more of its subordinate objects) has reported a problem.
Orange	Acknowledged	An administrator has acknowledged the broken status of this object, but the problem has not yet been corrected.
Bright Green	Repaired	The object is no longer reporting a problem or it has been repaired, but no administrator has acknowledged the repair yet.
Dark Green	Up	There is no current problem with this object or any of its subordinates. All previous problems have been repaired and acknowledged.
Blue	Unknown	The Distributed State Machine (DSM) knows of the object, but has not yet translated its state information into one of the previously defined statuses.
Gray	Deleted	The object has been deleted from the DSM's database of managed objects. It will soon be removed from the Agent View display.

---

## Node View Options

Several options can be used in the Node View window to provide more information. There are options to show the object class along with an associated icon for that object class. Figure 6-1 does not show these options. The information shown in Figure 6-1 is only the instance name of the object. Although showing the object class and the object class icon adds significant visual variety to the screen, displaying only the instance name allows you to show more objects on the screen. Administrators may find this simplified view more usable in a production environment.

---



## Agent View

The Unicenter TNG Integration Module for Compaq Insight Manager provides an Agent View for the Compaq Management Agents (Figure 6-3). This feature is similar to the Agent View option for the NT System Agent.

The following systems are monitored for overall status by the Agent View for the Compaq Management Agents. More detailed information can be obtained on each system by selecting the appropriate system icon at the top of the Agent View. The information provided in each of these sections is explained below.

- Standard Equipment
- System Information
- IDA Drive
- SCSI Drive
- Health Condition
- Threshold Manager
- Operating System

**NOTE:** Some systems may appear as NOT AVAILABLE, as shown in Figure 6-3. In many cases, this is correct. For example, the system shown in Figure 6-3 contains no SCSI devices, so information on that system is not available.

---

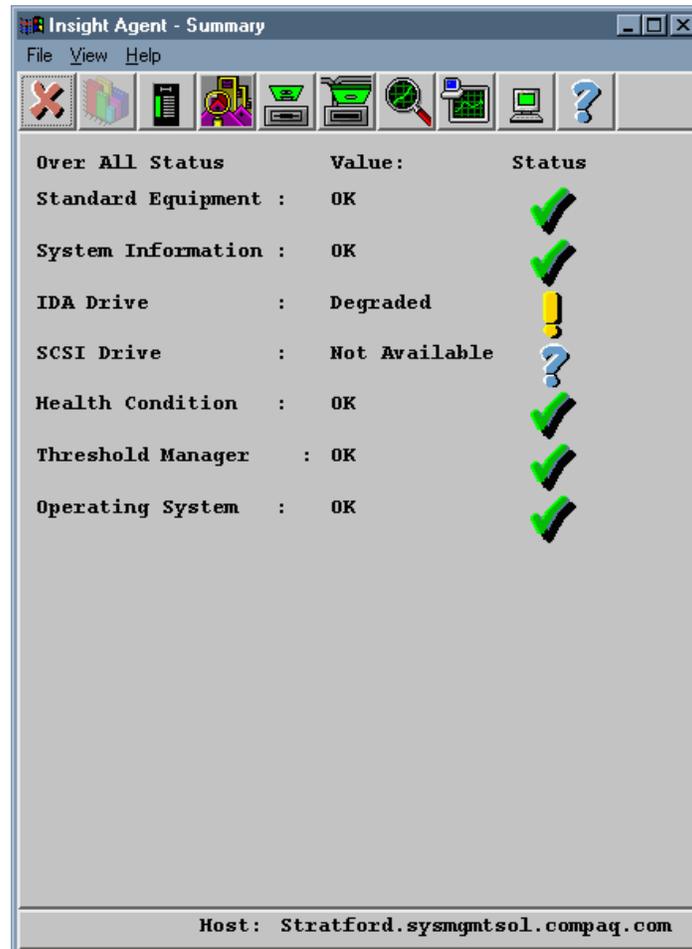


Figure 6-3. Agent View of Compaq Server Management Agents

## **Standard Equipment**

- Displays number and type of central processing units installed and displays the following information.
    - CPU #
    - Slot #
    - Processor Name
    - Processor Status
    - Includes external processor bus speed, but does not report internal processor speed
    - Manufacturer
  - Displays number and type of floating-point processing units installed
    - FPU #
    - Slot #
    - FPU Name
    - Includes floating-point processor speed; for an internal floating-point processor, this speed is equal to the processor's internal speed
    - FPU Type
-

## System Information

- Provides general system unit information
  - System Serial Number
  - Form Factor
  - Power-on Password status
  - Product Name
- Gives status of integrated interfaces (enabled or disabled)
  - Primary Serial Port
  - Secondary Serial Port
  - Parallel Port
  - Floppy Disk
  - Fixed Disk (IDE interface)

**6-10** *Using the Integration*

**IDA Drive**

- Monitors overall status of the RAID controller(s) (SMART, SMART-2, Smart Array 3100ES, IDA, or IDA-2)
- Provides the type of fault tolerance in use
- Monitors overall status of each connected drive
- Provides detailed asset information about each drive
  - Drive Size
  - Model Number
  - Serial Number
  - Physical Location (internal, external, or ProLiant Storage System)

**SCSI Drive**

- Monitors overall status of the SCSI controller(s)
  - Provides the type of fault tolerance in use
  - Monitors overall status of each connected drive
  - Provides detailed asset information about each drive
    - Drive Size
    - Model Number
    - Vendor
-

## Health Condition

- Displays the condition of the correctable memory error log and the POST error log
- Displays the condition of any Redundant Power Supplies
- Displays the thermal status
- Displays the Automatic Server Recovery status

## Threshold Manager

- Displays the Alarm Table for the specified system
  - Alarm Index
  - Alarm Status – Valid, Invalid, Create Request, Under Creation, Temporarily Unavailable, Other
  - Interval – Interval in seconds between consecutive samples of the data
  - Value – Value during the last sampling period
  - Start Up – Rising Alarm, Falling Alarm, Rising or Falling Alarm
  - Permanence – Specifies if the threshold management software should recreate this entry if it is brought down and then restarted.

## **Operating System**

- Displays operating system name and version, including service packs (if applicable)
  - Provides file system information
    - Volume name
    - Volume size
    - Percent of volume in use
  - Type of file system in use (FAT, HPFS, NTFS) If the file system is NetWare it currently reads UNKNOWN
-

## Unicenter TNG's Business Process Views

The ability to create logical node groupings is available in Unicenter TNG. This is referred to in TNG terminology as Business Process Views. The administrator can create the logical icon groups while in “design mode.” Machine icons are then “clicked and dragged” from the main machine map into the logical group icon.

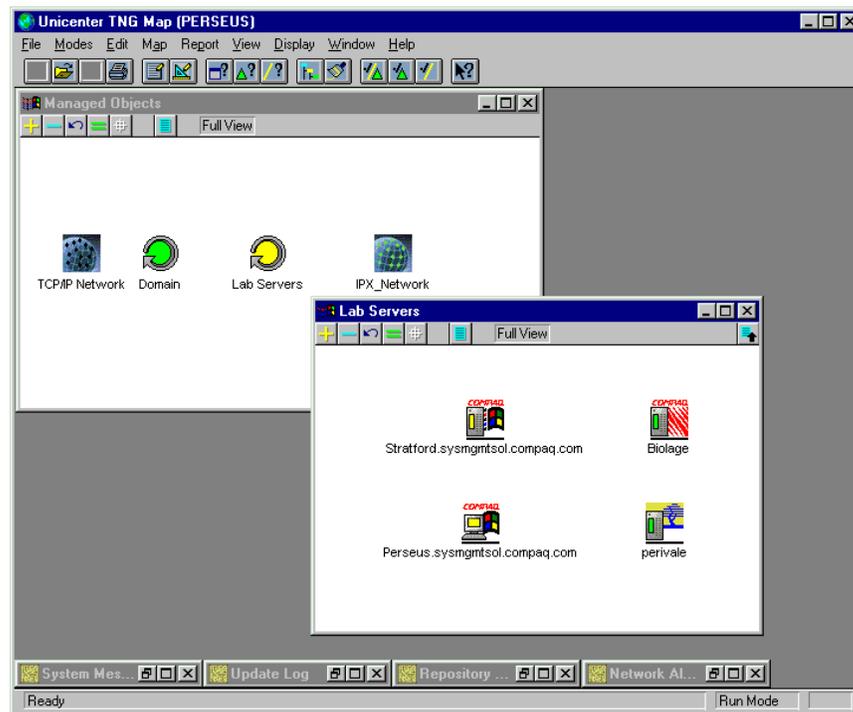


Figure 6-4. Unicenter TNG's Business Process View hierarchy example -The “Lab Servers” icon contains the four machines as shown in the lower window

## 3D Map

Functionality for the 3D-map is the same as the 2D-map. When Unicenter TNG is started for the 3D-map, the 2D-map is brought up and processed in the background. The core 2D-map functionality drives the 3D-map; the only difference is the presentation layer for the 3D effect. Administrators set up the 3D-map indirectly by first configuring the 2D-map. Specific 3D images can later be configured while in 3D mode. An example of 3D images that could be automatically created from a 2D map is shown in Figure 6-5. Figure 6-6 is the 3D image of a view inside a machine.

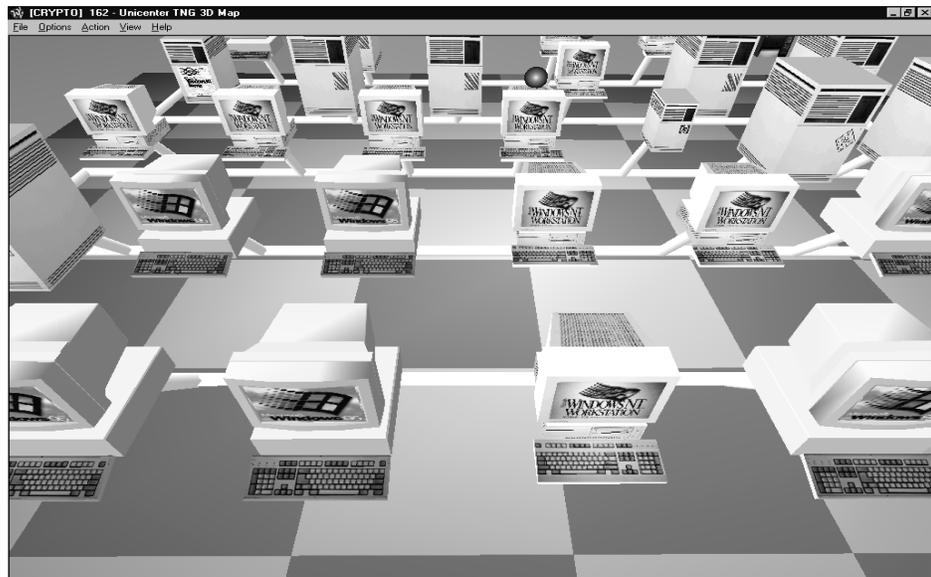


Figure 6-5. TNG 3D-map (3D image equivalent to the 2D image in Figure 2-3)



Figure 6-6. 3D Image of the Inside of a Server

## Launching Compaq Insight Manager from TNG

For machines with the Compaq Management Agents installed, the Compaq Insight Manager icon appears under the node container. Right-clicking the mouse displays the selection list, where you can select an option to launch, in context, Compaq Insight Manager. The Compaq Insight Manager console launches directly to the device list window for the machine highlighted on the Unicenter TNG map.

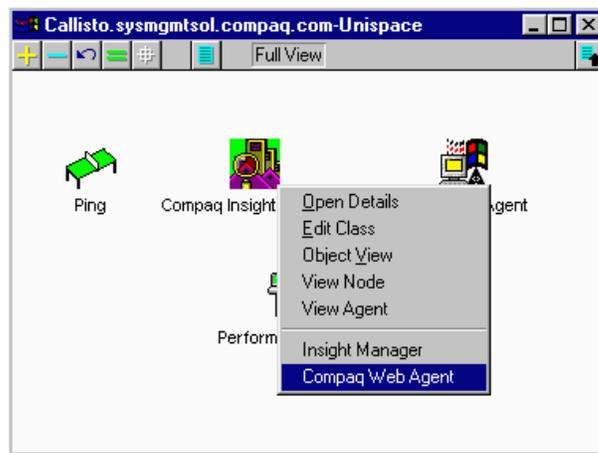


Figure 6-7. Window showing launch options from Compaq Insight Manager Icon

## Launching the Web-enabled Compaq Management Agents from TNG

For machines with the Compaq Management Agents installed, the Compaq Insight Manager icon appears under the node container. Right-clicking the mouse displays a selection list, where you can select an option to launch to the Web-enabled Compaq Management Agents.

**NOTE:** This option is shown on every discovered Compaq system, whether or not the system is running the Web-enabled agents. If the Web-enabled agents are not installed, using this option results in the browser displaying an error message .

This option assumes that Microsoft Internet Explorer is installed in the default location as the system browser. If Microsoft Internet Explorer is not the system browser, the menu item may be edited to allow launching of the installed browser to the web-enabled agents.

To change the menu option for launching the Web-enabled Compaq Management Agents, do the following:

1. Right-click on the Compaq Insight Manager icon and select **Edit Class**. This opens the CA Unicenter TNG Class Wizard.
2. From the CA Unicenter TNG Class Wizard, select the **Menu** tab.
3. Highlight Compaq Web Agent in the list of available menu items.
4. In the Command field, enter the path and executable name for the system browser. For example: C:\Program Files\!Plus\Microsoft Internet\iexplore.exe
5. Click **Ok** to continue.
6. Click **Yes** when asked to save the session data.
7. Click **Ok** to exit the CA Unicenter TNG Class Wizard.

## Enterprise Management Event Console

The event management components of Unicenter TNG take incoming events from a variety of sources. After the event is received, the event manager processes it, and records it in a daily log that is viewable from the Console Log GUI. The log file name format is `yyyymmdd.log` and is stored in the directory `\TNG\LOG` by default. After receiving the event, Unicenter TNG can react to the event based on message records and message actions created by the administrator. The sources of incoming events include:

- DSM Messages – These messages come from the Distributed State Machine. They inform the administrator about managed object status changes.
- SNMP Traps – These are asynchronous event messages received from SNMP-based agents. The SNMP trap server must be enabled on the event manager before the console can receive traps
- Computer Associates' Write to Operator (CAWTO) messages – These messages are usually generated by the administrator in response to certain events. They can be generated using commands from the event console or the command line.
- Common Communication Interface (CCI) messages – These messages are used for inter-process communication between Unicenter TNG components. CCI is an optimized interface specific to Unicenter TNG
- Windows NT Event Log events – These messages are generated by Windows NT. The event manager has an agent that retrieves events from the log and places them in the event console.

The message records provided in the integration kit allow the Unicenter Enterprise Management Event Console to interpret SNMP traps received from Compaq systems. These message records can be extended as needed to perform whatever actions the user sees as appropriate. Figure 6-8 shows the Unicenter TNG Enterprise Management Event Console.

---

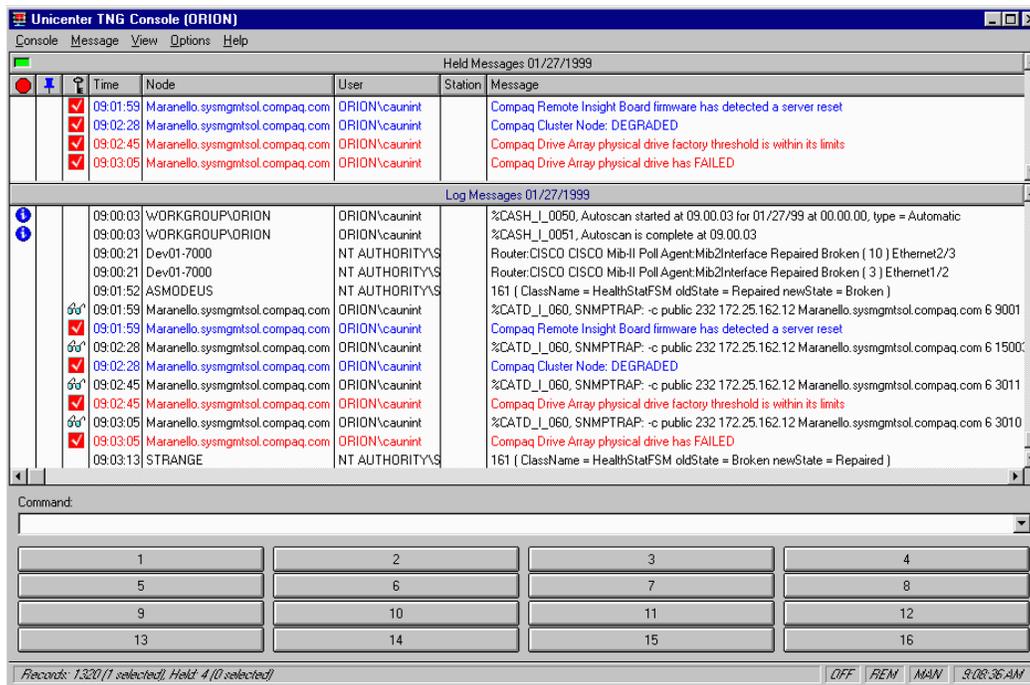


Figure 6-8. Enterprise Management Event Console showing translated Compaq Events

## Enabling SNMP Trap Processing

Before this functionality can be utilized, Unicenter must be configured to process SNMP traps. This can be done by executing the command **CATRAPD** from the Enterprise Management Event Console command line. This will enable SNMP trap processing for the current session only.

To turn on SNMP trap processing by default, follow these steps:

1. Select **Start | Programs | Unicenter TNG Enterprise Management | Enterprise Managers**.
2. Select **Windows NT**, then **Configuration**, then **Settings**.
3. In the settings screen, scroll down to the entry for **SNMP Trap Server Activated**.
4. Double click in the **Setting** column and select **Yes** to activate this option.

6-20 Using the Integration

5. Select **Yes** to confirm the change, then exit the dialog box.

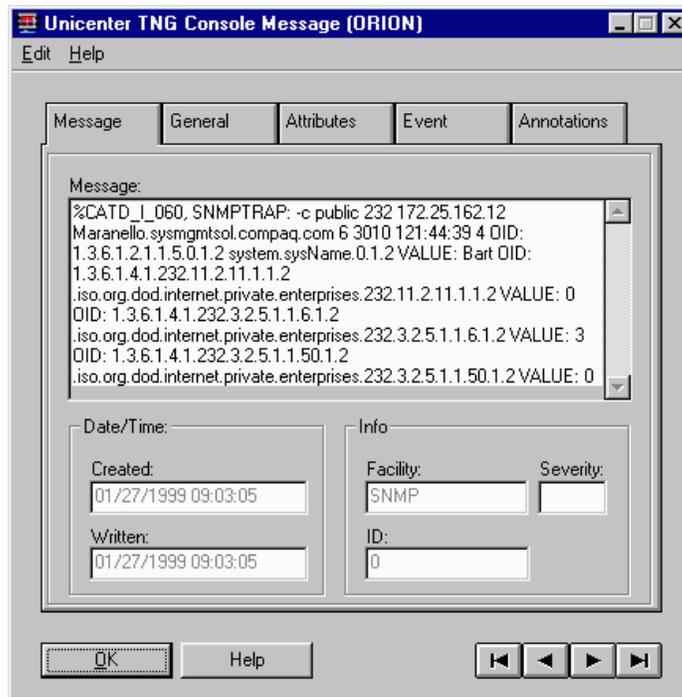


Figure 6-9. Untranslated Compaq SNMP trap

Now whenever the system starts, SNMP trap processing is enabled in Unicenter TNG.

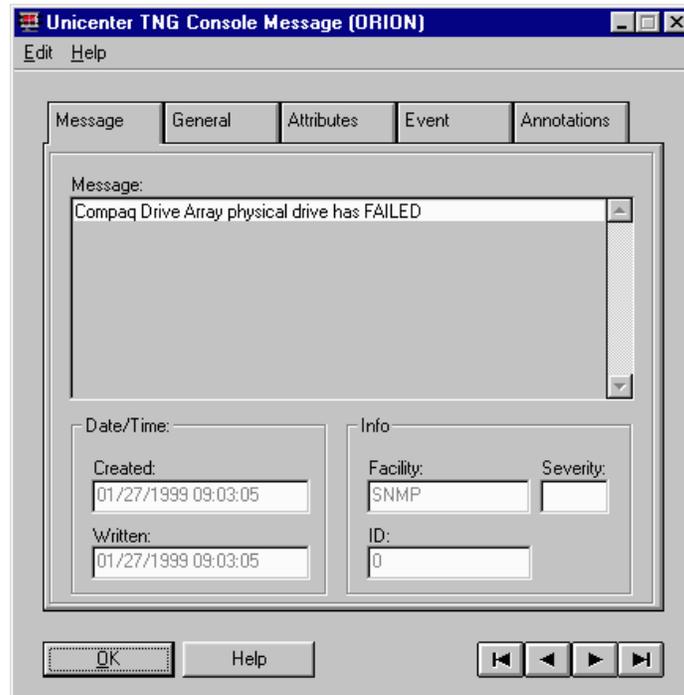


Figure 6-10. Translation for a Compaq SNMP trap

## ***Chapter 7***

# **Integration with the Unicenter TNG Framework**

## **Integration Feature Summary**

This chapter describes the integration of Compaq Insight Manager with the CA Unicenter TNG Framework. The Unicenter TNG Framework Integration Module for Compaq Insight Manager includes:

- Event notification inside Unicenter TNG's Enterprise Management Event Console. The supported events are listed in Appendix B.
- Launch in context of Compaq Insight Manager.
- Launch of the browser to the Web-enabled Compaq Management Agents.

The functionality supplied by the integration with the Unicenter TNG Framework is similar to the functionality described for Unicenter TNG. The most notable exceptions are the policy files that describe the Compaq Server Management Agents.

The policy files that describe the Compaq Server Management Agents rely on the Unicenter TNG AgentWorks Technology. Since this is not a feature of the TNG Framework, the policy files are not used in the Framework integration.

Even without these policy files, access to Compaq Insight Manager and the Web-enabled Compaq Management Agents is still available, as shown in Figure 7-1.

7-2 Integration with the Unicenter TNG Framework

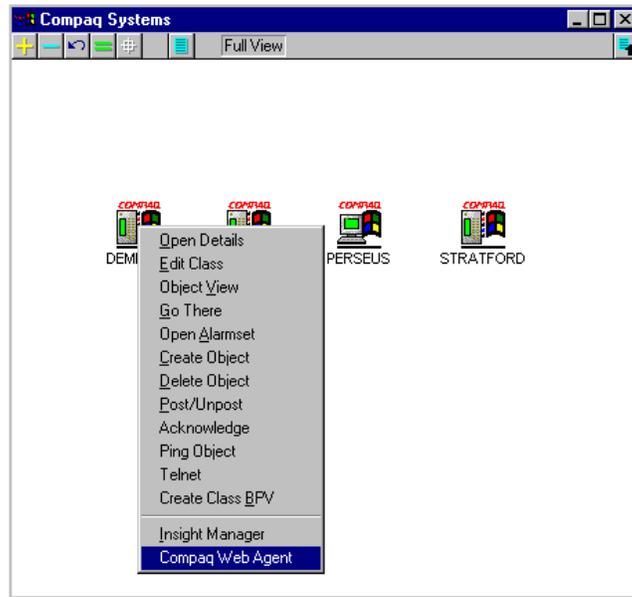


Figure 7-1. Launch menu for Compaq Insight Manager and the Web-enabled Compaq Management Agents

Figure 7-2 shows the Event Management Console available in the Unicenter TNG Framework. Only the translated messages are displayed since the default action is to suppress the raw SNMP trap.

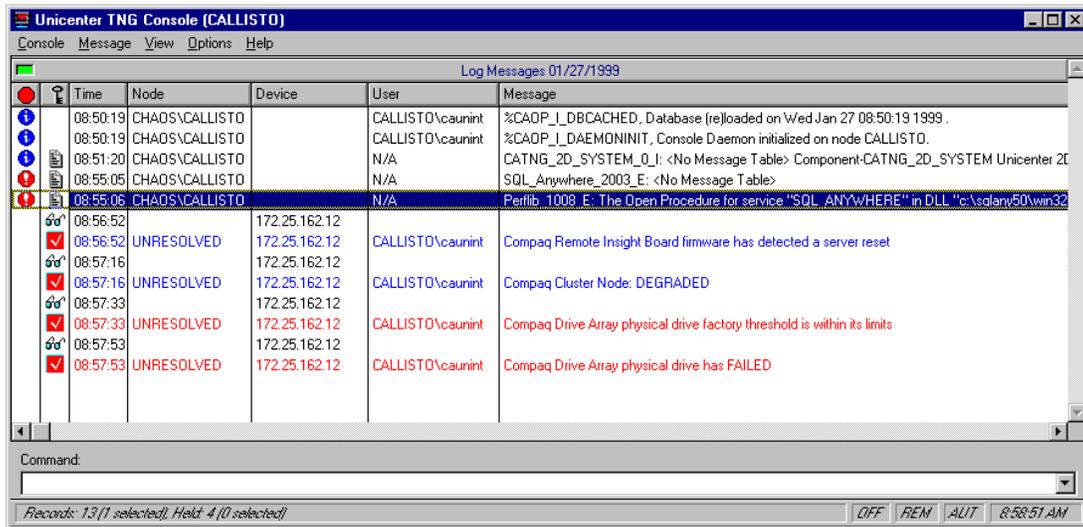


Figure 7-2. Unicenter Framework Event Management Console showing Compaq traps

## Installing the Framework Integration

The Unicenter TNG Framework Integration Module for Compaq Insight Manager contains two directories that hold different pieces of the integration:

- *CPQEM*
- *CPQWV*

The *CPQEM* directory contains the Compaq pre-defined Message Records and the *CPQWV* directory contains the Compaq Icons, Models and Menu definitions.

If you are using **pkunzip.exe** to unzip the integration files, be aware of the following items:

First, remember to use the “-d” option for pkunzip (or select “Use Folder Names” when unzipping with WinZip). You can unzip these files into your temp directory.

To install the WorldView part of the Compaq Insight Manager integration, at the command line, type in:

**cim\_install %1 %2;**

%1 should be the directory where the batch file stores itself and %2 is the path where the TNG framework is installed.

For example: **cim\_install c:\compaq c:\tngfw**

**NOTE:** Do not use “c:\tngfw\” for the TNG Framework directory. The second backslash will cause a problem.

---

## ***Chapter 8***

# **Management Solution Scenarios**

This chapter provides several scenarios illustrating how Compaq systems, Compaq Insight Manager, and Unicenter TNG work together to provide solutions for Enterprise Management. The following solution scenarios are discussed in this chapter:

- Using TNG to monitor Compaq Systems
- Using Compaq Professional Workstations as Unicenter TNG Consoles
- Enhancing TNG Message Actions for Compaq Specific Messages

These scenarios for NT systems are only suggestions on how to use Compaq Insight Manager with Unicenter TNG. There are many other ways the two can be used together. For more information, refer to the documentation for Compaq Insight Manager, Unicenter TNG, and the Unicenter TNG Integration Kit for Compaq Insight Manager listed in Chapter 1 of this TechNote.

## **Using TNG and the Integration Kit for Compaq Insight Manager to Monitor Compaq Systems**

In a typical Unicenter TNG environment, a heterogeneous set of hardware and operating system platforms must be monitored. If an administrator could distinguish one machine class from another, he/she could use a console operations strategy that matched operator skill sets to the machine classes they could administer. Operator consoles must be managed and configured to facilitate detection and ultimately resolution of alarms and events that are reported to the TNG console. Structuring the operator console requires knowledge of the customer's operational processes. The TNG Integration Kit for Compaq Insight Manager facilitates the configuration of TNG operator consoles in this type of functional alignment.

### **TNG AutoDiscovery**

The initial TNG AutoDiscovery of the customer network identifies all IP and IPX-addressable devices for the network as configured by the administrator. Unicenter TNG recognizes and distinguishes the different operating systems for each system discovered, and identifies the Compaq Management Agents on each system that has them installed. This is usually one of the major issues an administrator must resolve: the ability to automatically identify the machine class and the installed agents for machines in the monitoring environment. The TNG Integration Kit for Compaq Insight Manager includes TNG policies (or definitions) that identify the distinct characteristics that define the different types of Compaq machines along with the characteristics that indicate if a machine is running the Compaq Management Agents.

Once the auto discovery has completed, the Unicenter TNG 2D and 3D-maps show all the systems that have been discovered, along with their operating system type (as long as the operating system is known to TNG - this includes Microsoft Windows NT, Novell IntranetWare, and others). The administrator may then structure the map using Business Process Views.

---

## Unicenter TNG's Business Process Views

The administrator can use Unicenter TNG's Business Process Views to structure the operator console. If the customer environment calls for monitoring to be organized by machine class (i.e. the Compaq machine class), the administrator could set up a Business Process View representing Compaq class machines. Sub-level Business Process Views could then separate Compaq Professional Workstations from Compaq Desktops and Compaq Servers.

Figure 8-1 shows an example of a Unicenter TNG map showing a Business Process View named "Test Servers" on the large map, with the United States as the background. Logically under "Test Servers" is a sub Business Process View name "Houston Servers" (the window with the Texas map). Logically inside this Business Process View are two servers (named Stratford and Crypto). This example in Figure 8-1 shows how the administrator can nest Business Process views to create whatever hierarchy is needed to represent his/her environment.

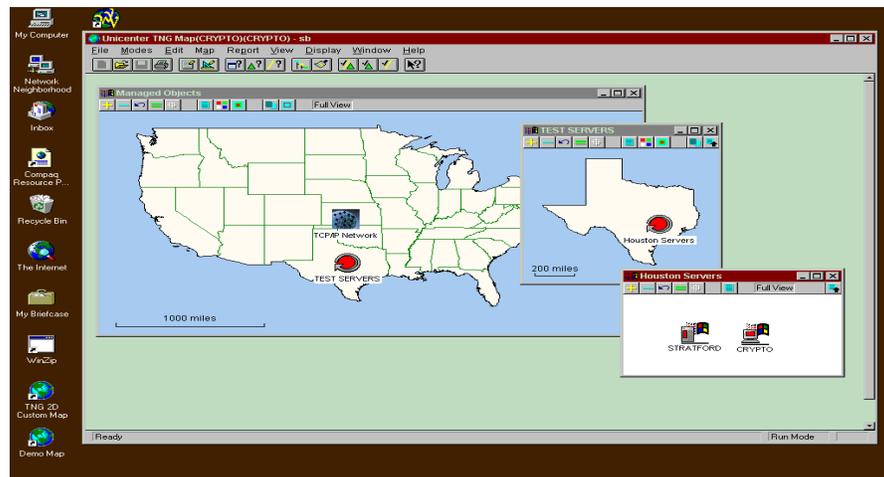


Figure 8-1. Example of Unicenter TNG Business Process Views

## **Launching the Compaq Insight Manager Console**

The operator who monitors the enterprise will probably use several tools to do his/her job. Unicenter TNG may be the core tool, and Compaq Insight Manager may be the supporting tool. In large environments, this is a likely scenario. In this situation, operators typically will use the Unicenter TNG console most of the time for monitoring faults and events. When an event occurs, the operator may need to find more information regarding the system in question. In this event, Compaq Insight Manager might be launched to further diagnose a problem.

## **Advanced Warning of Compaq Events**

With the integration of Compaq Insight Manager, the operator can be alerted to hardware-related problems before impacts occur at an application level. The integration between Unicenter TNG and Compaq Insight Manager allows for the Compaq Management Agents to detect a fault, report the fault to TNG, and have TNG scripts initiate a corrective action before an application outage occurs (discussed in more detail later in this chapter). Without the Compaq Management Agents, faults could go undetected until another agent detected the fault at a more severe level.

The key here is to exploit the advantages of the early warning hardware-monitoring capabilities of the Compaq Management Agents with the automated event recovery scripts that can be configured in Unicenter TNG. Defining and configuring automated event recovery scripts in Unicenter TNG is a significant effort for any operations environment. Whatever strategy is in place to develop automated scripts, the operations plan should take advantage of the types of early warning events that are captured by the Compaq Management Agents, and how they can be resolved through the Unicenter TNG event recovery features.

---

## Using Compaq Professional Workstations as Unicenter TNG Consoles

Architecting an Enterprise Management Solution begins with identifying the components that will make up the hardware platform for supporting the enterprise management software systems used. With Unicenter TNG, which follows the standard manager/agent paradigm, a management console(s) must be identified to accept event and fault management information from the remote managed nodes. This section describes how the Compaq Professional Workstation family provides a management console solution that can handle the processing, storage, and graphics requirements necessary to exploit the full advantages of a Unicenter TNG enterprise management platform.

### Critical Success Factors for a Unicenter TNG Console

When architecting an enterprise management solution, one of the issues to consider is the hardware platform to be used as the management console. When using Unicenter TNG as the enterprise software environment, there are four critical success factors for determining the best platform for the console architecture:

- High end graphics capability to support Unicenter TNG
- Storage capacity to handle the SQL Server data repository for event and fault history
- CPU capacity to handle the sophisticated maps and event browsers without significant performance degradation
- Capability to run Compaq Insight Manager along with Unicenter TNG as the management software

A fully detailed outline of the solution to this scenario is beyond the scope of this TechNote. However, it is important to realize that the solution to the problem is a complex one. Coordinating the solution at the console level, agent level, and repository level, must be carefully architected.

## Compaq Professional Workstations

As an alternative to a Sun, SGI, Intergraph, or IBM solution, the Compaq Professional Workstation family of products provides a solution that satisfies the success factors regarding the TNG console architecture.

**Table 8-1**  
**Compaq Professional Workstation as a Unicenter TNG Console**

Success Criteria	Description
1. High end graphics capability	<ul style="list-style-type: none"> <li>▪ Supports Elsa Gloria XL 3D Open GL Graphics controller</li> <li>▪ Supports Diamond Fire GL 4000 Graphics Controller</li> <li>▪ Supports Compaq PowerStorm 300 Graphics Controller</li> </ul>
2. Storage Capacity for Event Repository	<ul style="list-style-type: none"> <li>▪ Supports Wide-ultra SCSI with 4.3 or 9.1 GB drives, or 6.4 GB Ultra ATA SMART drives</li> <li>▪ Supports up to 54 GB of internal storage (depending on model)</li> </ul>
3. CPU Capacity for 2D and 3D maps and browsers	<ul style="list-style-type: none"> <li>▪ Support for 1 or 2 Pentium II 266/512 and 300/512 (Compaq Professional Workstation 5100 and 6000)</li> <li>▪ Support for 1 to 4 Pentium Pro 200/256 (Compaq Professional Workstation 8000)</li> <li>▪ Support for 1 or 2 Intel Pentium II Xeon 400 or 450-MHz processor, with integrated 512-KB L2 cache (Compaq Professional Workstation SP700)</li> <li>▪ Support for Intel Pentium II 400-MHz and 450-MHz processors (Compaq Professional Workstation AP200, AP400, and AP500)</li> <li>▪ Support for Intel Pentium II 350-MHz processors (Compaq Professional Workstation AP200 and AP400)</li> </ul>
4. Support to run Compaq Insight Manager and Unicenter TNG	<ul style="list-style-type: none"> <li>▪ Supports Compaq Insight Manager console and Agents</li> <li>▪ Supports Unicenter TNG 2.0 or greater</li> </ul> <p><b>Note:</b> The Compaq Professional Workstations are shipped with Microsoft Windows NT 4.0.</p>

## Compaq Professional Workstation Configuration for a Unicenter TNG Console

The Compaq Professional Workstations would typically be configured with the following software when used as a console in a Unicenter TNG environment (version numbers are provided as an example and usually would be the latest available):

- Microsoft NT Workstation 4.0 with Service Pack 3.
- Microsoft SQL Server 6.5 or greater
- Compaq Insight Manager 3.0 or greater
- Unicenter TNG 2.0, Genlevel 9703 (or greater)
  - WorldView (for the 2D and 3D TNG maps)
  - Enterprise Management
- Unicenter TNG Integration Kit for Compaq Insight Manager

**NOTE:** This integration has been tested with version 3.0 to 4.01 of the Compaq Server Management Agents

## Enhancing TNG Message Actions for Compaq Specific Messages

Within Unicenter TNG, administrators can configure specific actions to take place in response to events that are received from managed nodes. Automated alarm and event recovery is the key to exploiting some of the more advanced capabilities of Unicenter TNG. With Unicenter TNG, this functionality is available through the Event Management subsystem. The step by step process is relatively simple and straightforward. This section outlines how to access the Compaq Messages and Message Actions and set the stage for administrators to begin the process of automating alarm and event recovery.

### Event Management Subsystem

The Event Management subsystem has functionality that allows the administrator to identify specific messages from managed nodes and the actions to be performed when the message is received. Once a message and an associated message action are configured, that action is automatically performed whenever the event occurs, thus automating the recovery (or partial recovery) of that event.

With the Compaq Integration Kit, 308 Compaq specific messages are configured in the Unicenter TNG environment. Under the Event Management Subsystem, the administrator should follow the following basic steps to view and/or customize these messages:

- Select **Event** from the Enterprise Management Main Window
  - Select **Messages** - this will bring up a window of all the Compaq messages already defined
-

- Select a Message to configure or customize and bring up the Message Record Detail Window
- Select **Actions** and specify the recovery action for the event

Associated with these messages, are message actions that currently pass the message to the Unicenter Console Logs (there is currently no specific event recovery). These can be viewed from the Message Action section of Event Management (see Figure 8-2).

Sequence	Token	Active	Simulate	Keyword	Text
10	11	ACTIVE	N	SENDKEEP	Compaq Drive Array Logical drive has SHUTDOWN
10	12	ACTIVE	N	SENDKEEP	Compaq Drive Array Spare drive status: OTHER
10	13	ACTIVE	N	SENDKEEP	Compaq Drive Array Spare drive is INVALID
10	14	ACTIVE	N	SENDOPER	Compaq Drive Array Spare drive has FAILED
10	15	ACTIVE	N	SENDKEEP	Compaq Drive Array Spare drive has become INACTIVE
10	16	ACTIVE	N	SENDOPER	Compaq Drive Array Spare drive is BUILDING
10	17	ACTIVE	N	SENDOPER	Compaq Drive Array Spare drive is ACTIVE
10	18	ACTIVE	N	SENDOPER	Compaq Drive Array Physical drive status: OTHER
10	19	ACTIVE	N	SENDOPER	Compaq Drive Array Physical drive is OK
10	20	ACTIVE	N	SENDKEEP	Compaq Drive Array Spare drive has FAILED
10	21	ACTIVE	N	SENDKEEP	Compaq Drive Array Physical drive threshold has been EXCEEDED
10	22	ACTIVE	N	SENDKEEP	Compaq Drive Array Physical drive threshold is OK
10	23	ACTIVE	N	SENDKEEP	Compaq 4MB Array Accelerator Write Cache status: OTHER
10	24	ACTIVE	N	SENDKEEP	Compaq 4MB Array Accelerator Write Cache is INVALID
10	25	ACTIVE	N	SENDKEEP	Compaq 4MB Array Accelerator Write Cache is ENABLED
10	26	ACTIVE	N	SENDKEEP	Compaq 4MB Array Accelerator Write Cache is TEMPORARILY DISABLED
10	27	ACTIVE	N	SENDKEEP	Compaq 4MB Array Accelerator Write Cache is PERMANENTLY DISABLED
10	28	ACTIVE	N	SENDOPER	Compaq Array Accelerator Write Cache Battery status: OTHER
10	29	ACTIVE	N	SENDKEEP	Compaq Array Accelerator Write Cache Battery is OK, NO DATA LOSS
10	30	ACTIVE	N	SENDKEEP	Compaq Array Accelerator Write Cache Battery may have lost power, POSSIBLE DATA LOSS
10	31	ACTIVE	N	SENDOPER	Compaq 4MB Array Accelerator Write Cache Battery Failure status: OTHER
10	32	ACTIVE	N	SENDOPER	Compaq 4MB Array Accelerator Write Cache Battery Failure status is OK
10	33	ACTIVE	N	SENDKEEP	Compaq 4MB Array Accelerator Write Cache Battery Failure status is RECHARGING
10	34	ACTIVE	N	SENDKEEP	Compaq 4MB Array Accelerator Write Cache Battery Failure status has FAILED

558 record(s): 1 selected 9:53:08 AM

Figure 8-2. Message Action Summary Window

## Message Action Example

Following is an example to illustrate how to enhance the message actions for Compaq specific messages. The example scenario includes a Compaq ProLiant server configured with a logical drive array of three physical drives. When one of the physical drives of this hypothetical system fails, the logical drive would change states from a ground state to a degraded state as the system recovers. In response to this event, the administrator would like to be paged to alert him/her to this event. To accomplish this, the following basic steps would be followed:

- From the Enterprise Management subsystem, select Messages to display the Compaq messages. Refer to Figure 8-3. Find the message that indicates the Logical Drive is recovering (a message indicating the physical drive failed could also have been used). Different sort options are available to sort this window by any column. For this example, sort by the message description, and select the message with the following description:

**Compaq Logical Drive Array Status: RECOVERING**

Message id	Description	Domain Node	Domain User
* SNMPTRAP: **** 61 **** 1.3.6.1.4.1.232.3.2.31.1.4.??*1*	Compaq Logical Drive Array Status: OTHER		
* SNMPTRAP: **** 61 **** 1.3.6.1.4.1.232.3.2.31.1.4.??*10*	Compaq Logical Drive Array Status: OVERHEATING		
* SNMPTRAP: **** 61 **** 1.3.6.1.4.1.232.3.2.31.1.4.??*6*	Compaq Logical Drive Array Status: READY FOR REBUILD		
* SNMPTRAP: **** 61 **** 1.3.6.1.4.1.232.3.2.31.1.4.??*7*	Compaq Logical Drive Array Status: REBUILDING		
* SNMPTRAP: **** 61 **** 1.3.6.1.4.1.232.3.2.31.1.4.??*5*	Compaq Logical Drive Array Status: RECOVERING		
* SNMPTRAP: **** 61 **** 1.3.6.1.4.1.232.3.2.31.1.4.??*11*	Compaq Logical Drive Array Status: SHUTDOWN		
* SNMPTRAP: **** 61 **** 1.3.6.1.4.1.232.3.2.31.1.4.??*4*	Compaq Logical Drive Array Status: UNCONFIGURED		
* SNMPTRAP: **** 61 **** 1.3.6.1.4.1.232.3.2.31.1.4.??*8*	Compaq Logical Drive Array Status: WRONG DRIVE		
* SNMPTRAP: **** 62 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*9*	Compaq Logical SCSI Drive Status(v1.0): BAD CONNECTION		
* SNMPTRAP: **** 62 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*3*	Compaq Logical SCSI Drive Status(v1.0): FAILED		
* SNMPTRAP: **** 62 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*2*	Compaq Logical SCSI Drive Status(v1.0): OK		
* SNMPTRAP: **** 62 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*1*	Compaq Logical SCSI Drive Status(v1.0): OTHER		
* SNMPTRAP: **** 62 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*6*	Compaq Logical SCSI Drive Status(v1.0): READY FOR REBUILD		
* SNMPTRAP: **** 62 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*7*	Compaq Logical SCSI Drive Status(v1.0): REBUILDING		
* SNMPTRAP: **** 62 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*5*	Compaq Logical SCSI Drive Status(v1.0): RECOVERING		
* SNMPTRAP: **** 62 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*4*	Compaq Logical SCSI Drive Status(v1.0): UNCONFIGURED		
* SNMPTRAP: **** 62 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*8*	Compaq Logical SCSI Drive Status(v1.0): WRONG DRIVE		
* SNMPTRAP: **** 6 5002 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*9*	Compaq Logical SCSI Drive Status(v2.0): BAD CONNECTION		
* SNMPTRAP: **** 6 5002 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*3*	Compaq Logical SCSI Drive Status(v2.0): FAILED		
* SNMPTRAP: **** 6 5002 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*2*	Compaq Logical SCSI Drive Status(v2.0): OK		
* SNMPTRAP: **** 6 5002 **** 1.3.6.1.4.1.232.5.2.31.1.5.??*1*	Compaq Logical SCSI Drive Status(v2.0): OTHER		

Figure 8-3. Message Record Window

- Select this message and open the Message Record Detail Window by double clicking on the message. (See Figure 8-4.)

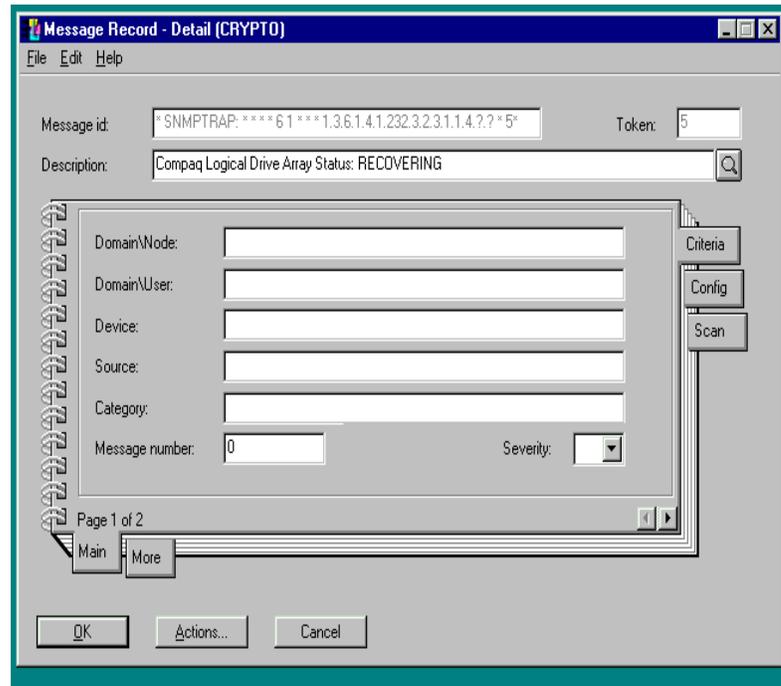


Figure 8-4. Message Record Detail Window

- From the Message Record Detail, select **Actions** to bring up the Message Action Summary for this message.

## 8-12 Management Solution Scenarios

- From the menu bar select **Selected**, then **New** to define a new action. This brings up a new window, Message Record Action Detail. (See Figure 8-5.)

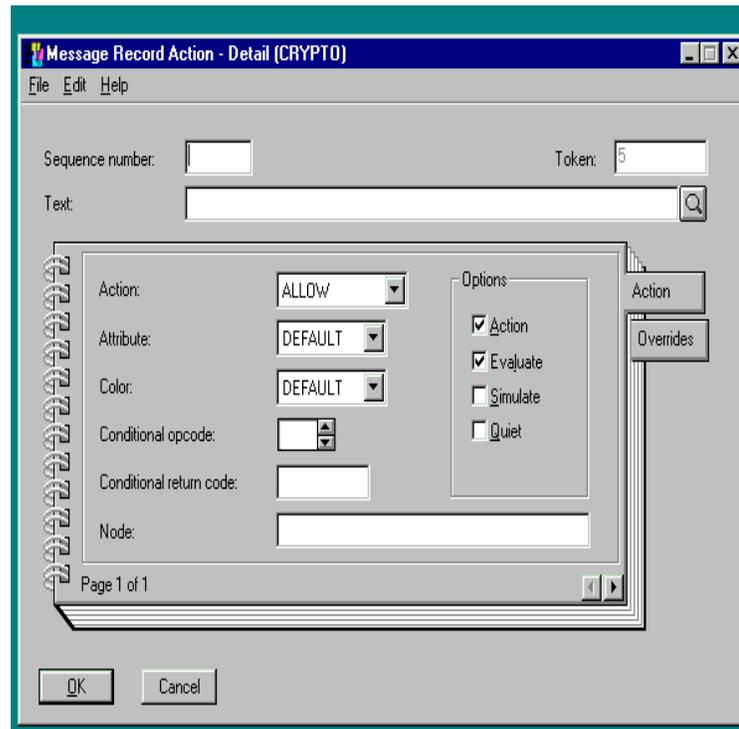


Figure 8-5. Message Record Action Detail Window

- On the Message Record Action Detail window, specify the action type to perform an administrator-specified program and then specify the program for Unicenter TNG to perform. In this example, since the administrator wishes to be paged when this event occurs, the paging software command would be entered on this window. There are many options that can be configured for this message action; the use of these options will vary depending on specific user requirements.
  - Close all windows.
-

These solutions just being to unveil the advantages of combining Computer Associates Unicenter TNG with Compaq Insight Manager. There are many issues an enterprise architect faces when putting together a solution to manage a complex environment end-to-end. Unicenter TNG is a very robust product suite; the addition of the integration with Compaq Insight Manager provides better management of the enterprise due to the advanced level of hardware management possible with Compaq systems.

## ***Chapter 9***

# **Distribution and Support**

The Unicenter TNG Integration Module for Compaq Insight Manager and the TNG Framework Integration Module for Compaq Insight Manager may both be obtained in the U.S. by placing a call to Computer Associates (516) 342-4800.

Use this same number to get product support.

For ordering and support outside the U.S., contact your Computer Associates account representative.

## **Appendix A**

# **Multivendor Integration from Compaq**

To help you successfully integrate and optimize your network or multivendor system, Compaq has developed a library of systems integration TechNotes for the NetWare, Microsoft Windows NT, SCO UNIX, and OS/2 operating system environments. TechNotes provide you with important information on topics such as network performance management, server management, and operating system interconnectivity.

To get a copy of a particular TechNote in electronic format, you can access:

- Downloadable files from the Internet at:  
[http:// www.compaq.com](http://www.compaq.com)
- Downloadable files from the Compaq Systems Reference Library CD

## **Pricing**

Compaq TechNotes:

U.S. \$15 (CDN \$20)\*

\*Plus shipping & handling

## **How to Order**

To order by PHONE (credit card orders only), call:

- 800-952-7689 (In U.S.: 7 a.m. - 7 p.m. C.S.T.)
- 800-263-5868 (In Canada: 24 hours)
- 317-364-7281 (From outside U.S. & Canada:  
7 a.m. - 7 p.m. C.S.T.)

**A-2** *Multivendor Integration from Compaq*

To order by MAIL or FAX, send complete order information to:

**Worldwide:** Compaq Fulfillment Center  
(except Canada & P.O. Box 4100  
France) Crawfordsville, Indiana 47933

FAX: 317-364-0787

**Canada:** Compaq TechNotes  
Compaq Canada, Inc.  
111 Granton Drive, Suite 101  
Richmond Hill, ON L4B 1L5

FAX: 800-668-1835

**France:** Compaq TechNotes  
Compaq Computer S.A.R.L.  
5, Avenue de Norvege  
91959 LES ULIS Cedex  
France

FAX: 331-64-46-51-81

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## Current TechNotes

TechNotes current and available at the time of this publication and their part numbers are listed in the following table.

**Table A-1**  
**Compaq TechNotes**

<b>TechNote Name</b>	<b>Part Number</b>
<b><i>Compaq Insight Management</i></b>	
Integrating Compaq Insight Manager with Microsoft Systems Management Server (11/96)	184720-006
Integrating Compaq Insight Manager with Enterprise Management Platforms (11/96)	145806-005
Integrating Compaq Insight Manager with ManageWise (6/96)	182074-002
<b><i>Microsoft</i></b>	
Sizing Microsoft BackOffice 1.5 on Compaq Servers (2/96)	185496-001
Migrating to Microsoft Windows NT Server 3.51 on Compaq Servers (12/95)	185026-001
Implementing Microsoft Windows NT Server RAS, DHCP, and WINS on Compaq Servers (9/95)	184488-001
Configuration and Tuning of Oracle7 for Windows NT on Compaq Servers (7/95)	184853-001
Configuration and Tuning of Microsoft SQL Server for Windows NT on Compaq Servers (4/96)	184207-002
Compaq Backup and Recovery for Microsoft SQL Server (3/95)	184489-001
Migrating from Microsoft Windows NT Advanced Server 3.1 to Microsoft Windows NT Server 3.5 (2/95)	184669-001

*continued*

**A-4 Multivendor Integration from Compaq**

*Compaq TechNotes* **Continued**

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<b>TechNote Name</b>	<b>Part Number</b>
<b>Microsoft (continued)</b>	
Drive Subsystem Performance with Microsoft LAN Manager 2.1 (11/92)	145517-001
Implementing Lotus Notes on Compaq Servers with Microsoft LAN Manager (9/92)	145201-001
Microsoft SQL Server and Novell NetWare Requester for OS/2 (9/92)	145376-001
<b>NetWare</b>	
SYBASE SQL Server 4.2.2 for NetWare: Tuning and Performance (2/95)	184429-002
NetWare 4 Performance Management (9/95)	137989-002
Compaq Answers to Technical Support Questions for NetWare Environments (2/95)	145710-002
Performance of Lotus Notes 3.1 on Compaq ProLiant Servers with NetWare 3.1x (2/95)	184430-001
NetWare Migration from 3.12 to 4 (11/94)	181152-001
Configuration and Tuning of Oracle7 for NetWare on Compaq Servers (11/94)	electronic format only
NetWare Migration from 2.x to 3.12 (6/94)	181069-001
Tape Backup Using ARCserve v5.01 - Windows Edition from Compaq (1/94)	137672-001
NetWare SFT III v3.11 Installation (9/93)	145905-001
ORACLE Server Planning in a NetWare v3.11 Environment (5/93)	145143-001

*continued*

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*Compaq TechNotes* Continued

<b>TechNote Name</b>	<b>Part Number</b>
<b><i>NetWare (continued)</i></b>	
Performance Management in a NetWare v3.1x Environment (4/93)	133399-002
NetWare Tape Backup Management Using ARCserve from Compaq (4/93)	137535-001
Compaq IDA-2 Configuration for NetWare (12/92)	145536-001
Compaq ProSignia Configuration Guidelines for NetWare v3.x (12/92)	145537-001
NetWare Server Management (9/92)	145231-001
<b><i>UNIX</i></b>	
Configuration and Tuning of Sybase System 10 for SCO UNIX Open Server 3.0 on Compaq Servers (9/95)	185111-001
Configuration and Tuning of Sybase System 10 for Novell UnixWare 2.0 on Compaq Servers (7/95)	184-942-001
Configuration and Tuning of Oracle7 for SCO UNIX on Compaq Servers (11/94)	184329-001
Disk Mirroring with VERITAS VxMirror (12/93)	145656-001
The Compaq, SCO UNIX, and ORACLE7 Database Server (9/93)	195818-001
Performance Tuning for SCO UNIX on Compaq Systems (5/93)	145730-001
SCO UNIX IP Routing Over X.25 Networks (4/93)	145711-001

*continued*

**A-6** *Multivendor Integration from Compaq*

*Compaq TechNotes* **Continued**

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<b>TechNote Name</b>	<b>Part Number</b>
<b><i>UNIX (continued)</i></b>	
Printing in SCO UNIX and NetWare Integrated Environments (3/93)	145538-002
SCO UNIX Connectivity to SNA Environments Over X.25 Networks (1/93)	145583-001
SCO UNIX Database Servers in Novell Networks (10/92)	145402-001
SCO UNIX in an SNA Environment Using Computone LYNX (7/92)	145116-001
SCO UNIX in an SNA Environment Using CLEO DataTalker U/X (5/92)	145081-001
<b><i>IBM</i></b>	
Performance of Lotus Notes 3.1.5 on Compaq ProLiant Servers with OS/2 2.11 (3/95)	electronic format only
Compaq Answers to Technical Support Questions for OS/2 Environments (11/94)	electronic format only
<b><i>Technology Overview</i></b>	
Updating Compaq System Software From an Integration Server (11/96)	219467-002
Configuring Compaq RAID Technology for Database Servers (7/94)	184206-001

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## Appendix B

# Compaq Management Agent SNMP Traps

**NOTE:** This list of supported Compaq traps was current at the printing of this TechNote. New alarms may have been added since.

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**Table B-1**  
**Pre-defined Message Records for Compaq Management Agent SNMP Traps**

File Name	Trap Name	Trap Specific ID
Cpqt12.txt	CpqFcaPhyDrvStatusChange	16003
	CpqFcaAccelStatusChange	16004
	CpqFcaAccelBadDataTrap	16005
	CpqFcaAccelBatteryFailed	16006
	CpqFcaCntlrStatusChange	16007
Cpqt13.txt	CpqFcaLogDrvStatusChange	16001
	CpqFcaSpareStatusChange	16002
Cpqt14.txt	CpqCluster	15001 and 15002
	CpqClusterNode	15003 and 15004
	CpqClusterResource	15005 and 15006
Cpqt15.txt	CpqSm2 (Remote Insight Board)	9001 thru 9008
Cpqt16.txt	CpqDa2LogDrvStatusChange	3001, 3008, and 3009
Cpqt17.txt	CpqDa2LogDrvStatusChange	3002 thru 3007
Cpqt18.txt	CpqDa2LogDrvStatusChange	3010 thru 3014

*Continued*

**B-2 Compaq Management Agent SNMP Traps**

**Pre-defined Message Records for Compaq Management Agent SNMP Traps**

*Continued*

Cpqutl9.txt	CpqScsiCntlrStatusChange	5001 thru 5005
Cpqutl10.txt	CpqScsiCntlrStatusChange	5006 and 5007
	CpqHe2	6001 and 6002
	CpqHeThermalTemp	6003 thru 6005
	CpqHeThermalSystemFan	6006 thru 6008
	CpqHeThermalCpuFan\	6009 and 6010
	CpqHeAsrConfirmation	6011
	CpqHeThermalConfirmation	6012
	CpqHePostError	6013
	CpqHeFitToIPwrSupplyDegraded	6014
Cpqutl11.txt	CpqHe3CorrectableMemory	6015 and 6016
	CpqHe3ThermalTemp	6017 thru 6019
	CpqHe3ThermalSystemFan	6020 thru 6022
	CpqHe3ThermalCpuFan	6023 and 6024
	CpqHe3AsrConfirmation	6025
	CpqHe3ThermalConfirmation	6026
	CpqHe3PostError	6027
	CpqHe3FitToIPwrSupplyDegraded	6028
Cpqutl12.txt	CpqSs2FanStatusChange	8001
	CpqSsTemp	8002 thru 8004
	CpqSsidePanel	8005 and 8006
	CpqSsPwrSupplyDegraded	8007

*Continued*

**Pre-defined Message Records for Compaq Management Agent SNMP Traps***Continued*

Cpqu13.txt	CpqSs3FanStatusChange	8008
	CpqSs3Temp	8009 thru 8011
	CpqSs3SidePanel	8012 and 8013
	CpqSs3PwrSupplyDegraded	8014
Cpqu14.txt	CpqMeRisingAlarm	10001
	CpqMeFallingAlarm	10002
	CpqMe2RisingAlarm	10003
	CpqMe2FallingAlarm	10004
	CpqUpsLineFailed	12001
	CpqUpsLineOk	12002
	CpqUpsShutdown	12003
	CpqUpsConfirmation	12004
	CpqUpsBatteryLow	12005
	CpqUps2LineFailed	12006
	CpqUps2LineOk	12007
	CpqUps2Shutdown	12008
	CpqUps2Confirmation	12009
	CpqUps2BatteryLow	12010
	CpqUpsOverload	12011
	CpqUpsPendingBatteryFailure	12012
	CpqUpsGenericCritical	12013
	CpqUpsGenericInfo	12014
	CpqIdeDriveDegraded	14001
	CpqIdeDriveOk	14002
CpqIdeDriveUltraAtaDegraded	14003	

*Continued*

**B-4** Compaq Management Agent SNMP Traps

**Pre-defined Message Records for Compaq Management Agent SNMP Traps**

*Continued*

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Cpqutldk.txt	CpqSiHoodRemoved	2001
	CpqSiMonitorCondition	2002 thru 2004
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