HP Technology Forum 2006

Session ID:1769

How to Configure HP Systems Insight Manager to Work with Non-HP Gear and What to Expect

David Claypool
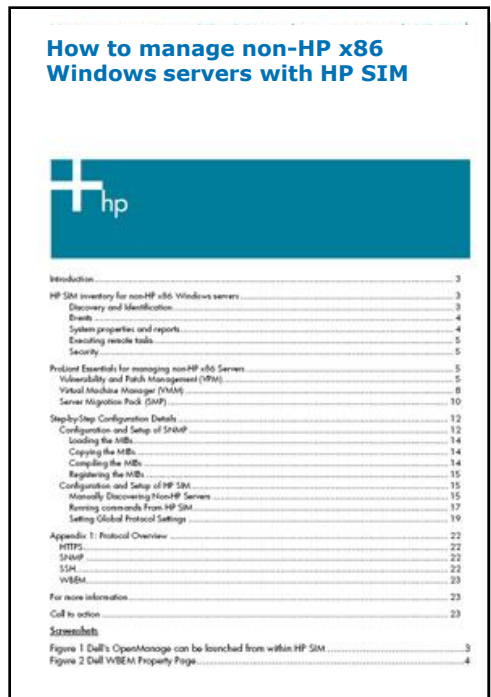**ESS Volume Software**
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Agenda

- Industry standards for management that enable it to provide systems management for systems beyond those of HP

- Look at the standards and configuration of HP SIM

- Discuss what to expect when HP SIM is used with non-HP systems and storage

HP SIM Whitepaper
How to manage non-HP x86 Windows servers with HP SIM

How to manage non-HP x86 Windows servers with HP SIM

Newly updated for HP SIM 5.0 SP5

Note: this is for a Windows-hosted HP SIM managing non-HP systems running Windows only

http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00709449/c00709449.pdf

or access any HP SIM document / user guide / whitepaper from

http://www.hp.com/go/hpsim --> Information Library

Insight Agents for non-HP gear

- …don't exist
- Our philosophy is that the best agent for a system is from that system's maker
- Instrumenting and testing our agents on other systems would be time-consuming and always behind
- Why only Windows?
  - Not a lot of uptake for CIMOMs on Linux like OpenWBEM and OpenPegasus because of their large footprint
  - No real testing done with WBEM services for Solaris (SPARC) and AIX, but initial experience is that they weren't working

HP SIM Interfaces
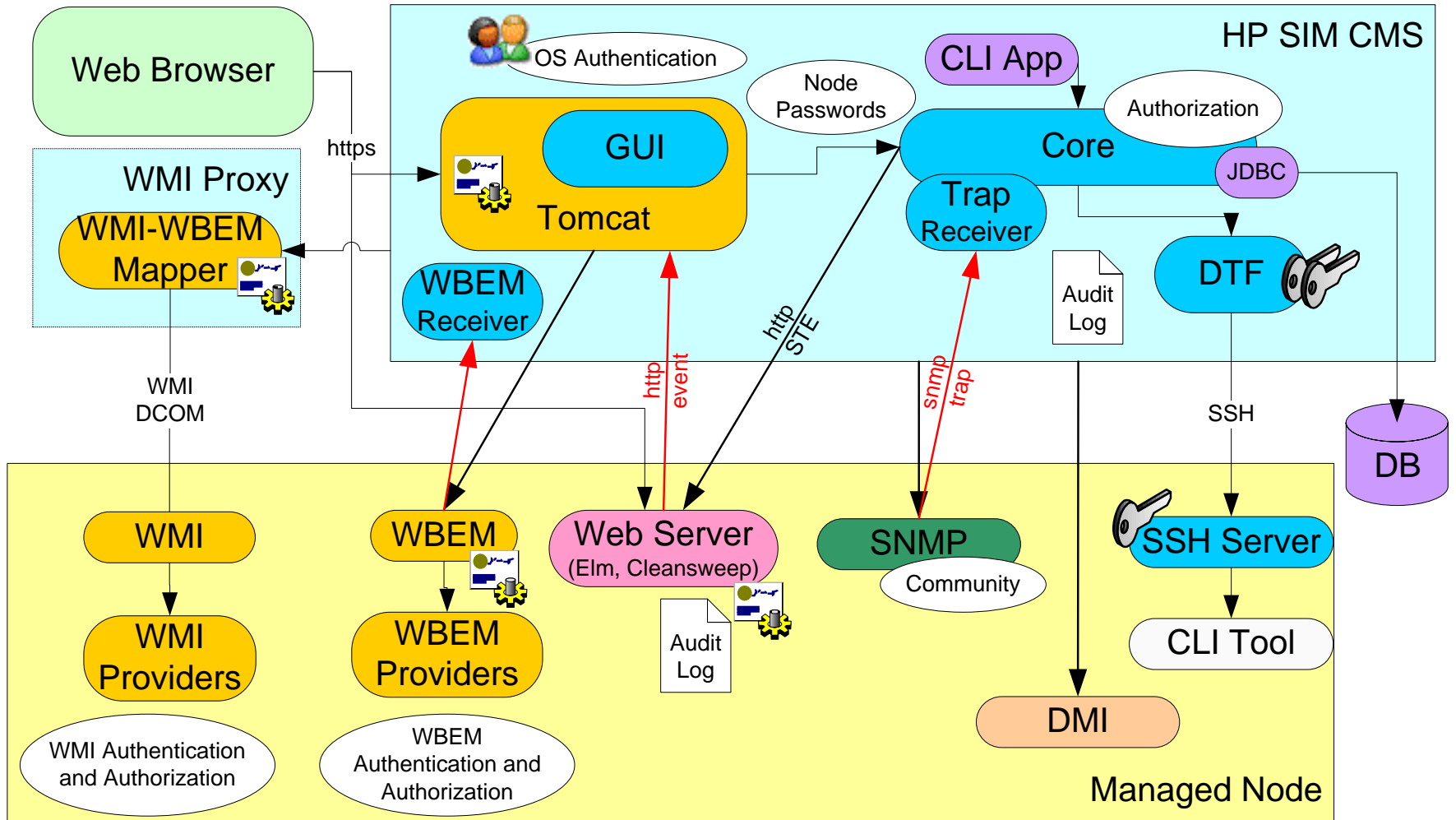
Protocols used when managing non-HP

- Simple Network Management Protocol (SNMP)
  - Status polling (up/down)
  - Device identification
  - Events (SNMP traps)
- WBEM/WMI
  - Data collection from the WBEM CIMv2 namespace or the WMI namespace
- HTTP
  - Web server identification and link population

HP SIM usage of SNMP

- ProLiant servers
  - Status polling (ProLiant status array)
  - Data collection
  - Events (SNMP Traps)
- Integrity servers
  - Windows
    - Status polling
    - Data collection
    - Events (SNMP Traps)
  - Linux
    - Status polling
    - Data collection
    - Events (SNMP Traps)
  - HP-UX
    - Status polling
- Non-HP devices
  - Status polling (up/down)
  - Events (SNMP Traps)

HP SIM does
NOT use SNMP
to 'walk the MIB'

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Security and SNMP

- Yes, it's true that SNMP is not secure and plain text community strings are passed

- But, if you've got people sniffing your corporate network, there are bigger problems than SNMP

- At any rate, SNMP is not recommended for use outside of a firewall on the Internet

- HP SIM does not use a 'write' community string for any operation

- You can use reasonable measures to secure SNMP
  - Respond to only specific hosts (SNMP layer)
  - Bind to a specific interface (Insight agent)

Identification process

- Like playing '20 questions…' with a device
  - Do you speak SNMP ?
    - Are you a ProLiant server ?
    - Do you match one of my other identification rules ?
  - Do you speak WBEM ?
    - XML encoded data in the CIMv2 namespace over HTTPS
  - Do you speak WMI ?
    - WMI namespace data over DCOM
  - Do you have HTTP or HTTPS services at any of the following ports ?

Identification: System Type Manager

- In HP SIM, Options → Manage Systems Types
- STM enables you to customize the type and product name of third-party systems using rules based on responses to SNMP and DMI (Windows only) lists from systems on your network.
  - Manufacturers assign unique system object identifiers to their SNMP instrumented products.
  - System Type Manager (STM) enables you to customize identification by creating rules that map these system object identifiers to product categories and names of their choice.
  - HP Systems Insight Manager (HP SIM) discovers and applies information from the rule when an unknown system matches a rule that you specify.
  - Rules contains system object identifiers, and optionally, additional object identifier, that are compared with responses from a target system.
  - When a rule meets the comparison specification, the system is identified using information from the rule.
- NOTE: While STM operates independently of the MIB compile process, variable names will appear in STM for retrieval

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Identification: System Type Manager

- There are 27 system types including server, desktop, thin client, router, switch, storage, etc
- HP SIM comes with 369 pre-defined identification rules in System Type Manager
  - This includes types of 'Dell Server' and 'IBM Server'
  - With a little bit of work, and assuming the data is there, rules to identify individual models can be created
- Caution: a rule that is too generic can cause other rules to 'break'
- Recommendation: start out with a priority of '2'
- Remember that a product name of 'Unmanaged' means that a management protocol has not been identified and 'Unknown' means a management protocol has been identified but a rule doesn't apply for classification

Manage System Types

Events: SNMP Traps

- Successful translation of SNMP traps is done through the use of a Management Information Base (MIB)

- Since HP SIM only uses the MIB for event translation, only alert-related MIBs are necessary

- HP SIM utilizes only SNMP v1 trap information

- Compiling and registering the MIB is done with the command line utilities 'mcompile' and 'mxmib'

- HP SIM comes with more than 400 MIBs, although all of them are not compiled and registered
  - Check the directory and use 'mxmib' to check on yours

Troubleshooting SNMP

- Common mistakes are done when additional MIBs are specified in INCLUDE statements and are not found

- It is not uncommon for MIBs to have issues where the INCLUDE statement may not match the filename as it is in your directory (e.g. long filename truncated 8.3)

- Best always to copy MIBs into the HP SIM MIB directory before compiling and registering

- If a trap is being received at the HP SIM CMS but not appearing in the HP SIM Events collections, go to Options → Events → Event Filter Settings and enable 'Accept unregistered events'

HP SIM Interfaces
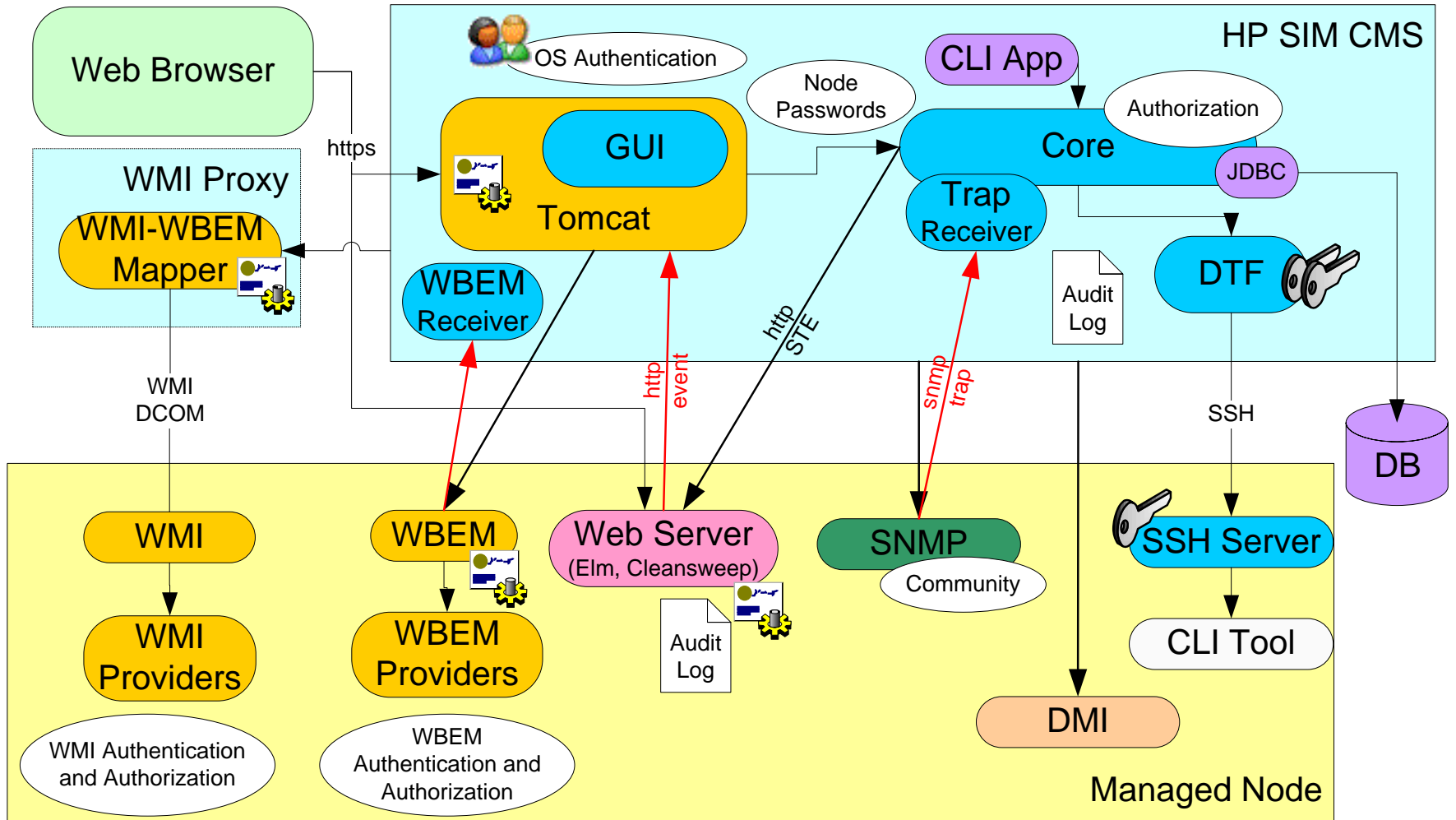
WBEM/WMI

- HP SIM speaks 'pure WBEM'
  - XML encoded data from the CIMv2 namespace over HTTPS
- WBEM is a secure protocol and has username/password authentication
  - Account used does NOT have to have administrator privileges
- WBEM is used to talk to HP-UX 11i systems and is also the mechanism used for storage (SMI-S)
- HP SIM uses the 'Pegasus WMI Mapper' to translate 'pure WBEM' to 'WMI'
- Since HP SIM only understands 'WBEM' the discovered protocols listing will <u>not</u> show 'WMI'

Pegasus WMI Mapper

- Essentially a 'black box'
- Make sure HP SIM knows where it is installed
- Previous bug where DNS name resolution was required has been fixed
- Troubleshooting
  - If there's one box that just isn't showing up with WMI, install the WMI Mapper on it and configure it into HP SIM and re-run identification
  - Make sure that WMI can travel the path between the target and the mapper; search microsoft.com for 'scriptomatic' which produces WMI scripts that can be modified to check communications
- More info: www.openpegasus.org

If WMI is not available (device) or not discovered (authorization)…

- …only expect to see <u>extremely</u> basic information from the device:

Inventory

System Name	IP Address	System Status	Product Type	Product SubType	Product ID	Product Model	Serial Number	Asset Tag	Memory Size (KB)	ROM Version	Operating System Name	Operating System Vendor	Server Role	Location	System Owner	System Boot Up Time	IPX Address
chickasaw	16.101.168.175	●Normal	Unknown	None					0								

Operating System Information

System Name	Description	Version	Operating System Type	Additional Description	Operating System Vendor
chickasaw					

Network Interface

System Name	Description	Mac Address	IP Address	Input Errors	Output Errors	Speed (bps)	Duplex	Interface Name	Subnet Mask	Broadcast Address	Interface State	DHCP Enabled	Protocol Type	Operational Status	Port Type	Max Data Size
chickasaw.cca.cpqcorp.net				10590	365021											
chickasaw.cca.cpqcorp.net lo0						10000000										

Storage Device Inventory

Device Name	World Wide Name	Vendor	Model	Product Revision	Firmware Version	Serial Number	Status	Port Count	Port Utilized
chickasaw	chickasaw.cca.cpqcorp.net								

File   Edit   View   Favorites   Tools   Help

Back | Search   Favorites |

Data Collection Report for dell1750sb

Associated system list: Data Collection Report for dell1750sb

Report date and time: Wednesday, December 14, 2005 10:01:09 AM PST

Show SQL queries

Inventory

System Name	IP Address	System Status	Product Type	Product SubType	Product ID	Product Model	Serial Number	Asset Tag	Memory Size (KB)	ROM Version	Opera
dell1750sb	16.101.169.234	Normal	Server	None	0J3014	PowerEdge 1750	FBV2741		1047916		Micros

Operating System Informa

System Name	Description		Version	Operating S
dell1750sb	Microsoft(R) Windows(R) Server 2003, Enterprise Edition		5.2.3790	Windows NT

Logical Disk Drives

System Name	Description	Total Size (MB)
dell1750sb	3 1/2 Inch Floppy Drive	0
dell1750sb	Local Fixed Disk	34663
dell1750sb	CD-ROM Disc	0

Network Interface

System Name	Description	Mac Address	IP Address	Input Errors	Output Errors	Speed (bps)	Duplex	Interface Name
dell1750sb	Broadcom NetXtreme Gigabit Ethernet	00:0D:56:FD:41:67	16.101.169.234	0	0	100000000		

Process

System Name	ID	Name
dell1750sb	0	System Idle Process
dell1750sb	4	System
dell1750sb	472	smss.exe
dell1750sb	600	csrss.exe
dell1750sb	688	winlogon.exe
dell1750sb	748	services.exe

Done   Internet

Start | HP Systems Insight Man... | Reports Result - Micr...   10:01 AM

WMI and DCOM error 10009

- HP SIM performs an 'Identification' process immediately after discovery and (by default) on a daily basis
- 'Identification' is like playing 20 questions with a device to find out what it can do
- With WBEM enabled and the WMI Mapper installed, <u>each and every device</u> will be asked if it supports WMI and will attempt to authenticate for each and every username/password combination it has
- Devices that don't support WMI (printers, routers, Linux servers, etc) or for which HP SIM doesn't have the proper credentials will result in a DCOM error 10009 on the CMS
- This can be <u>minimized</u> but not eliminated by not enabling WBEM on the Global Protocol Settings but instead by using it on a system by system basis

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HTTP identification

- During identification, HP SIM runs through a set of UDP ports to see if HTTP services are running there and will create a link for that service if it matches

- The 'additionalWsDisc.props' file by default contains entries for IBM Director agent (port 411) and Dell OpenManage IT Server Administrator (port 1311)

- Several standard ports are checked such as port 80, but the list is user-definable in 'additionalWsDisc.props'

  – Found in:

    C:\Program Files\HP\Systems Insight Manager\config\identification

- A companion README file documents the format

- Changes to the 'additionalWsDisc.props' file require the HP SIM service to be restarted

additionalWsDiscs_README.txt

```
# Additional Web Server Discovery Properties - README file
#
# This file contains information about adding or removing additional web server ports used for discovery
# and identification.  This is a guide to show the format of entries in the "additionalWsDisc.props" file.
#
# Entries in "additionalWsDisc.props" should be of the following format:
#
#     Port=Description,Reserved,"true","false",ClassName,Protocol
#
# where:
#
#             'Port': A number indicating the additional HTTP or HTTPS
#                     port to be added into discovery.
#      'Description': The description of the web server to be displayed in the
#                     list of links on the device page if a title isn't found.
#         'Reserved': Reserved - Set to a space. (*See example below.)
#             true : Reserved - Set to "true".
#            false : Reserved - Set to "false".
#        'ClassName': The name of the HP Systems Insight Manager Java class
#                     that does the processing for the additional
#                     management processor port.  This should be set to a space
#                     except for HP Remote Insight Boards.
#         'Protocol': The protocol on the port, either "http" or "https"
#                     will default to "http" if not specified.
#
#  The lines below are shown as an example.  Any line beginning with a '#' symbol is commented out.  To add
#  additional HTTP ports for discovering HTTP servers (besides 80), create an entry like the line below but
#  remove the comment symbol, set the desired port number and add the appropriate description and class name.
#
#  The example below is intended to be used for discovering HP Remote Insight Boards at alternate HTTP ports
#  (other than port 80). The class name shown (com.hp.mx.core.tools.identification.mgmtproc.MgmtProcessorParser)
#  will identify any management processor found at the port specified.
#
#80=HP Remote Insight, ,true,false,com.hp.mx.core.tools.identification.mgmtproc.MgmtProcessorParser,http
#
#  The example below shows the 'Reserved' field in use to search for a specific URL. Note that because this
#  specific example uses port 80 which is the default HTTP port, the 'Description' field is generic to account for
#  other web servers running on port 80 that might unexpectedly match this rule.
#
#80=Default Web Server,itassistant/ui/omaBaseFrame.htm,true,false, ,http
```

Troubleshooting identification

- Create a collection called 'Protocols' and customize the fields it displays

Search for systems

where	system type	is	Server	Delete
and	management protocol	is	DMI	Delete
or	management protocol	is	HTTP	Delete
or	management protocol	is	SNMP	Delete
or	management protocol	is	SSH	Delete
or	management protocol	is	System Management Home Page	Delete
or	management protocol	is	WBEM	Delete

<< Add

	HS	System Name	System Address	SSH	WBEM	SNMP	DMI	HTTP	System Management Home Page
☐	❌	192.168.1.107 Hosted by esxserver2	192.168.1.107	0	1	1	0	0	
☐	✅	6f4ae835594ebc7	192.168.1.31	0	1	0	0	1	2.0
☐	🔻	bfs-linux in Encl. 6U-Enclosure	192.168.1.27	1	0	1	0	0	
☐	🔻	bfs-windows in Encl. 6U-Enclosure	192.168.1.26	0	1	1	0	1	2.0
☐	✅	bladesystemdc Hosted by virtualserver1	192.168.1.24	0	1	1	0	0	
☐	⚠️	blmaster	192.168.1.1	1	1	1	0	1	2.0
☐	🔻	demoserver2 in Encl. 6U-Enclosure	192.168.1.8	1	1	1	0	1	2.0
☐	🔻	demoserver3 in Encl. 6U-Enclosure	192.168.1.114	1	1	1	0	1	2.0
☐	✅	ead4e1fc55d5c35 Hosted by esxserver1	192.168.1.101	0	1	1	0	0	
☐	🔻	esxserver1 in Encl. 6U-Enclosure	192.168.1.5	1	0	1	0	1	2.0
☐	⚠️	esxserver2 in Encl. 6U-Enclosure	192.168.1.6	1	0	1	0	1	2.0
☐	✅	rdp-server Hosted by blmaster	192.168.1.30	1	1	1	0	0	
☐	⚠️	virtualserver1	192.168.1.3	0	1	1	0	1	2.0

What to expect…

- For non-HP gear, HP SIM does <u>NOT</u>:
  - Map management processors (e.g. IBM Remote Supervisor Adapter, Dell Remote Access Controller) to their hosted server
  - Provide physical associations and visualization for blade servers
  - Perform secure task execution actions designed for the Insight agents (e.g. 'Replicate agent settings…', 'Set disk thresholds')
  - Provide Version Control to keep software and firmware up to date
  - Get any more detail than is instrumented in WMI

File   Edit   View   Favorites   Tools   Help

Back | Search   Favorites

Address   https://localhost:50000/mxportal/home/MxPortalFrames.jsp   Go   Links

HP Systems Insight Manager

User: administrator
Home | Sign Out

System Status

Legend...   Customize...

Updated: Wed, 12/14/2005, 9:45:10 AM PST

1   12   19   30   Uncleared Event Status

Search

[   ]   Search

Advanced Search...

Systems and Events

++   --   Customize...

System Overview

↗ All Systems
↗ All Events

Systems
  Private
  Shared
    + Systems by Type
    + Systems by Status
    + Systems by Operating Syste
    + Clusters by Type
    + Clusters by Status
    + System Functions
Events
  Private
  Shared
    + Events by Severity
    + Login Events
    + Service Events
      All Virtual Machine Managen
      All Server Migration Events
    + VDM Events

Tools ▾   Deploy ▾   Configure ▾   Diagnose ▾   Optimize ▾   Reports ▾   Tasks & Logs ▾   Options ▾   Help ▾

System Page
dell1750sb (Server)

| Identity | Tools & Links | Events |

System Status

✓ Health Status

ⓘ Software Status

ⓘ Vulnerability Status

More Information

Properties

Identification

Address	16.101.169.234
Preferred System Name	dell1750sb
Network Name	dell1750sb
Serial Number	FBV2741

Product Description

Product ID	0J3014
System Type	Server
Product Model	PowerEdge 1750
Hardware Description	Hardware: x86 Family 15 Model 2 Stepping 9 AT/AT COMPATIBLE - Software: Windows Version 5.2 (Build 3790 Multiprocessor Free)
OS Name	Microsoft(R) Windows(R) Server 2003, Enterprise Edition
OS For Tool Filtering	WINNT
OS Description	Service Pack 1
OS Version	5.2.3790
Management Protocols	WBEM:1.0, SNMP:1.0, SSH:SSH-2.0-OpenSSH_3.7.1p1

Done   Internet

Start | HP Systems Insight M...   9:45 AM

Properties: ibmx3351

Name	IBMX3351
Model	eserver xSeries 335 -[867671X]-
Owner	Scott
Description	
Serial #	KPWNT47
UUID	54C17926-1DE2-11B2-BAFA-D496E17B4324
Processor	Intel(R) Xeon(TM) CPU 2.60GHz Intel(R) Xeon(TM) CPU 2.60GHz
Net Address	[16.101.169.237] [0.0.0.0]
MAC Address	00:0D:60:1B:DC:5C 00:0D:60:1B:DC:5D 50:50:54:50:30:30 33:50:6F:45:30:30
Domain	WORKGROUP
OS	Microsoft(R) Windows(R) Server 2003, Standard Edition
OS Version	5.2.3790
Service Pack	Service Pack 1
BIOS Mfr.	IBM
BIOS Version	-[T2E134CUS-1.12]-
Last Boot Up Time	11/21/05 1:14 PM (GMT -06:00)
Local Date & Time	12/13/05 5:41 PM (GMT -06:00)

Properties: dell1750sb

Name	DELL1750SB
Model	PowerEdge 1750
Owner	DELL1750SB
Description	
Serial #	FBV2741
UUID	4C4C4544-0042-5610-8032-C6C04F373431
Processor	Intel(R) Xeon(TM) CPU 2.40GHz Intel(R) Xeon(TM) CPU 2.40GHz
Net Address	[16.101.169.234]
MAC Address	50:50:54:50:30:30 33:50:6F:45:30:30 00:0D:56:FD:41:67
Domain	WORKGROUP
OS	Microsoft(R) Windows(R) Server 2003, Enterprise Edition
OS Version	5.2.3790
Service Pack	Service Pack 1
BIOS Mfr.	Dell Computer Corporation
BIOS Version	A06
Last Boot Up Time	12/13/05 6:01 PM (GMT -06:00)
Local Date & Time	12/14/05 9:51 AM (GMT -06:00)

Properties: ibmx3351

Identity | **Status** | **Configuration**

BIOS
Motherboard
Operating System
Processor(s)
Disk(s)
Network

Motherboard

Manufacturer	IBM
Product	
Serial #	
Primary Bus Type	PCI
Secondary Bus Type	ISA

Properties: dell1750sb

Identity | **Status** | **Configuration**

BIOS
Motherboard
Operating System
Processor(s)
Disk(s)
Network

Motherboard

Manufacturer	Dell Computer Corporation
Product	0J3014
Serial #	..CN6970241D0682.
Primary Bus Type	PCI
Secondary Bus Type	ISA

Beyond HP SIM…
ProLiant Essentials and non-HP gear

Packages with <u>no</u> hardware dependencies	
Vulnerability and Patch Management Pack	Functionality is identical
Virtual Machine Management Pack	Functionality is identical
Workload Management Pack	Functionality is identical

Packages with <u>caveats</u>	
Rapid Deployment Pack	HP ships the Altiris Deployment Server in its entirety without change. Other systems can be deployed with it using various techniques, but without HP customer assistance. HP does <u>NOT</u> sell RDP licenses for non-HP gear by contract with Altiris.
Server Migration Pack (including P2ProLiant)	Any non-HP device can be a SOURCE machine

Packages with <u>no non-HP functionality</u>	
Performance Management Pack	Depends on the Insight agents for information
Intelligent Networking Pack	Utilizes special hooks in HP NIC firmware
Accelerated iSCSI Pack	Utilizes special hooks in HP NIC firmware
HP Control Tower for HP BladeSystem	BladeSystem only

www.hp.com/go/hpsim

Properties: ibmx3351

Identity | **Status** | **Configuration**

BIOS

Motherboard

Operating System

Processor(s)

Disk(s)

Network

BIOS

Manufacturer	IBM
BIOS Version	-[T2E134CUS-1.12]-

Properties: dell1750sb

Identity | **Status** | **Configuration**

BIOS

Motherboard

Operating System

Processor(s)

Disk(s)

Network

BIOS

Manufacturer	Dell Computer Corporation
BIOS Version	A06

Properties: ibmx3351

Identity | **Status** | **Configuration**

- **BIOS**
- **Motherboard**
- **Operating System**
- **Processor(s)**
- **Disk(s)**
- **Network**

Disk Drive(s)

Device ID	Model	I/F	Part.	Size
\\.\PHYSICALDRIVE0	IBM-ESXS MAP3367NC FN SCSI Disk Device	SCSI	1	33.8 GB

Disk Partitions(s)

Partition ID	Size	Partition Type
Disk #0, Partition #0	33.8 GB	Installable File System

Logical Disk(s)

Device ID	Description	File System Type	Volume	Size	Free Space
A:	3 1/2 Inch Floppy Drive				
C:	Local Fixed Disk	NTFS		33.8 GB	28.2 GB
D:	CD-ROM Disc				

Properties: dell1750sb

Identity | **Status** | **Configuration**

- **BIOS**
- **Motherboard**
- **Operating System**
- **Processor(s)**
- **Disk(s)**
- **Network**

Disk Drive(s)

Device ID	Model	I/F	Part.	Size
\\.\PHYSICALDRIVE0	FUJITSU MAP3367NC SCSI Disk Device	SCSI	2	33.9 GB

Disk Partitions(s)

Partition ID	Size	Partition Type
Disk #0, Partition #0	54.8 MB	Unknown
Disk #0, Partition #1	33.8 GB	Installable File System

Logical Disk(s)

Device ID	Description	File System Type	Volume	Size	Free Space
A:	3 1/2 Inch Floppy Drive				
C:	Local Fixed Disk	NTFS		33.8 GB	28.6 GB
D:	CD-ROM Disc				

Properties: ibmx3351

Identity | Status | **Configuration**

BIOS
Motherboard
Operating System
Processor(s)
Disk(s)
Network

Network Interfaces

Description	Manufacturer	Adapter Type	MAC Address
Broadcom NetXtreme Gigabit Ethernet	Broadcom	Ethernet 802.3	00:0D:60:1B:DC:5C
Broadcom NetXtreme Gigabit Ethernet	Broadcom	Ethernet 802.3	00:0D:60:1B:DC:5D
RAS Async Adapter			
WAN Miniport (L2TP)	Microsoft		
WAN Miniport (PPTP)	Microsoft	Wide Area Network (WAN)	50:50:54:50:30:30
WAN Miniport (PPPOE)	Microsoft	Wide Area Network (WAN)	33:50:6F:45:30:30
Direct Parallel	Microsoft		
WAN Miniport (IP)	Microsoft		

IP Routing Table Information

Route	Protocol	Address Type	Destination Address	Destination Mask	Next Hop
0.0.0.0	netmgmt	Indirect	0.0.0.0	0.0.0.0	16.101.168.1
16.101.168.0	local	Direct	16.101.168.0	255.255.252.0	16.101.169.237
16.101.169.237	local	Direct	16.101.169.237	255.255.255.255	127.0.0.1
16.255.255.255	local	Direct	16.255.255.255	255.255.255.255	16.101.169.237
127.0.0.0	local	Direct	127.0.0.0	255.0.0.0	127.0.0.1
224.0.0.0	local	Direct	224.0.0.0	240.0.0.0	16.101.169.237
255.255.255.255	local	Direct	255.255.255.255	255.255.255.255	16.101.169.237
255.255.255.255	local	Direct	255.255.255.255		

Properties: dell1750sb

Identity | Status | **Configuration**

BIOS
Motherboard
Operating System
Processor(s)
Disk(s)
Network

Network Interfaces

Description	Manufacturer	Adapter Type	MAC Address
RAS Async Adapter			
WAN Miniport (L2TP)	Microsoft		
WAN Miniport (PPTP)	Microsoft	Wide Area Network (WAN)	50:50:54:50:30:30
WAN Miniport (PPPOE)	Microsoft	Wide Area Network (WAN)	33:50:6F:45:30:30
Direct Parallel	Microsoft		
WAN Miniport (IP)	Microsoft		
Broadcom NetXtreme Gigabit Ethernet	Broadcom	Ethernet 802.3	00:0D:56:FD:41:67
Broadcom NetXtreme Gigabit Ethernet	Broadcom		

IP Routing Table Information

Route	Protocol	Address Type	Destination Address	Destination Mask	Next Hop
0.0.0.0	netmgmt	Indirect	0.0.0.0	0.0.0.0	16.101.168.1
16.101.168.0	local	Direct	16.101.168.0	255.255.252.0	16.101.169.234
16.101.169.234	local	Direct	16.101.169.234	255.255.255.255	127.0.0.1
16.255.255.255	local	Direct	16.255.255.255	255.255.255.255	16.101.169.234
127.0.0.0	local	Direct	127.0.0.0	255.0.0.0	127.0.0.1
224.0.0.0	local	Direct	224.0.0.0	240.0.0.0	16.101.169.234
255.255.255.255	local	Direct	255.255.255.255	255.255.255.255	16.101.169.234

Properties: ibmx3351

Identity | **Status** | **Configuration**

Current Processes

Memory Utilization

Processor(s)

⊘ Disk(s)

⊘ System Drivers

System Services

Disk Drive(s)

Status	Device ID
⊘ OK	\\.\PHYSICALDRIVE0

Logical Disk(s)

Logical Disk Name	Free Space	Size	Description
A:			3 1/2 Inch Floppy Drive
C:	28.2 GB	33.8 GB	Local Fixed Disk
D:			CD-ROM Disc

Properties: dell1750sb

Identity | **Status** | **Configuration**

Current Processes

Memory Utilization

Processor(s)

⊘ Disk(s)

⊘ System Drivers

System Services

Disk Drive(s)

Status	Device ID
⊘ OK	\\.\PHYSICALDRIVE0

Logical Disk(s)

Logical Disk Name	Free Space	Size	Description
A:			3 1/2 Inch Floppy Drive
C:	28.6 GB	33.8 GB	Local Fixed Disk
D:			CD-ROM Disc

Properties: ibmx3351

Identity | **Status** | **Configuration**

BIOS

Motherboard

Operating System

Processor(s)

Disk(s)

Network

Operating System

Description	Microsoft(R) Windows(R) Server 2003, Standard Edition
OS Version	5.2.3790
Service Pack	Service Pack 1
Installed	5/26/05 3:44 PM (GMT -05:00)
Boot Drive	\Device\HarddiskVolume1
Install Directory	C:\WINDOWS
Registered User	Scott
Organization	VSB
OS S...	

Properties: dell1750sb

Identity | **Status** | **Configuration**

BIOS

Motherboard

Operating System

Processor(s)

Disk(s)

Network

Operating System

Description	Microsoft(R) Windows(R) Server 2003, Enterprise Edition
OS Version	5.2.3790
Service Pack	Service Pack 1
Installed	6/24/05 1:29 PM (GMT -05:00)
Boot Drive	\Device\HarddiskVolume2
Install Directory	C:\WINDOWS
Registered User	DELL1750SB
Organization	HP
OS Serial #	69713-640-3567761-45500

Properties: ibmx3351

Identity   **Status**   **Configuration**

Current Processes

Memory Utilization

Processor(s)

Disk(s)

System Drivers

System Services

Memory Utilization

Total Physical Memory	1,023.3 MB
Free Physical Memory	266.4 MB
% Free Physical Memory	26.06
Total Virtual Memory	2.4 GB
Free Virtual Memory	1.4 GB
% Free Virtual Memory	59.07
Total Page File Space	1.4 GB

Properties: dell1750sb

Identity   **Status**   **Configuration**

Current Processes

Memory Utilization

Processor(s)

Disk(s)

System Drivers

System Services

Memory Utilization

Total Physical Memory	1,023.3 MB
Free Physical Memory	428.6 MB
% Free Physical Memory	41.90
Total Virtual Memory	2.4 GB
Free Virtual Memory	1.9 GB
% Free Virtual Memory	79.75
Total Page File Space	1.4 GB