



# HP Systems Insight Manager with HP Command View EVA

White paper

## Table of contents

Executive summary.....	2
Terminology used .....	3
HP Command View EVA overview .....	4
HP Systems Insight Manager overview .....	4
Installing Systems Insight Manager and Command View EVA .....	5
Command View EVA deployment options.....	5
Discovering EVAs in Systems Insight Manager.....	5
Centralizing Event Notifications.....	7
Launching HP CVEVA from Systems Insight Manager .....	19
Configure Trust Relationship in HP CVEVA for HP SIM.....	20
Viewing EVA LUNs and Capacity Information from Systems Insight Manager .....	21
Configure HP SIM and HP CVEVA on Single Server.....	23
Configure HP SIM and HP CVEVA on Different Servers .....	33
Summary .....	34

## Executive summary

Businesses today face similar infrastructure challenges—too much under-utilized server and storage capacity, time and money spent on managing the infrastructure, and a relentless demand to meet changing business needs. And with each passing year, the costs associated with the management of the server and storage infrastructure take a larger chunk out of the data center budget.

This white paper describes the integration of HP Systems Insight Manager with HP Command View EVA. The following are key benefits of a unified server and storage management infrastructure:

- Provide a central point of integration to simplify and consolidate management of the entire server and storage infrastructure. Reduces deployment time and costs, and facilitates collaboration between traditional islands of server/storage management.
- Centralize event notifications in HP Systems Insight Manager for servers and storage. This is especially beneficial when there are multiple CV EVA servers in the environment. Simplify and improve response times when managing server-storage infrastructure alerts.
- Improve the detail of the EVA events through Insight Remote Support, ideal for both small and large environments needing to integrate remote support capabilities with a centralized management platform. Provide faster notification and subsequent resolution of server and storage events in your network.
- Provide high level summary of storage utilization for EVA.

The reader should be familiar with HP Systems Insight Manger and HP Command View EVA. Additionally, the reader should be familiar with HP service tools like Insight Remote Support and WEBES.

## Terminology used

The following definitions are used in this document:

<b>Term</b>	<b>Description</b>
ABM	Array Based Management
CMS	Central Management Station
CVEVA	Command View EVA
DESTA	Distributed Enterprise Service Tools Architecture
ELMC	Event Log Monitoring Collector
EVA	Enterprise Virtual Arrays
GUI	Graphical User Interface
LUN	Logical Unit Number
MIB	Management Information Base
RSA	Remote Support Advanced
RSS	Remote Support Standard
SBM	Server Based Management
SIM	Systems Insight Manager
SMI-S	Storage Management Initiative Specification
SMS	Storage Management Server
SNIA	Storage Networking Industry Association
SSO	Single Sign-On
SSSU	Storage System Scripting Utility
UI	User Interface
UUID	Unique Unit Identifier
WBEM	Web-based Enterprise Management
WWN	World Wide Name
WCC	WEBES Common Components

## HP Command View EVA overview

The HP Command View EVA software suite is used to configure, manage, and monitor the EVA, a family of advanced, enterprise storage arrays from HP. The software suite includes:

- **HP Command View EVA:** Use the graphical user interface for initial configuration, storage provisioning, and ongoing storage system management and monitoring.
- **HP StorageWorks Storage System Scripting Utility (SSSU):** Use the command line interface to script and run repetitive and complex configuration tasks. Go to [www.hp.com/go/cveva](http://www.hp.com/go/cveva) and then select "Support for your product". In "manuals" look for the document named "HP StorageWorks Storage System Scripting Utility reference".
- **HP StorageWorks Command View EVAPerf:** Use this tool to monitor array performance
- **Storage Management Initiative Specification for Enterprise Virtual Array (SMI-S EVA):** Install SMI-S EVA on a management server to provide a common management interface in a server-based management environment. It is a standard management interface developed by Storage Networking Industry Association (SNIA) to ease the management burden in multi-vendor SAN environments.

HP Command View EVA enables you to:

- Manage storage security and passwords
- License storage systems
- Provision storage to hosts
- Replicate storage using HP Business Copy EVA and HP Continuous Access EVA
- Maintain and manage storage systems
- Monitor storage system events

## HP Systems Insight Manager overview

HP System Insight Manager (HP SIM) is the foundation for the HP unified server-storage management strategy. HP SIM is a hardware-level management product that supports multiple operating systems on HP ProLiant, Integrity and HP 9000 servers, HP StorageWorks MSA, EVA, XP arrays, and third-party arrays. Through a single management view of Microsoft® Windows®, HP-UX 11iv1, HP-UX 11iv2, HP-UX 11iv3, and Red Hat and SuSE Linux, HP SIM provides the basic management features for the following:

- System discovery and identification
- Single-event view
- Inventory data collection
- Reporting

HP SIM uses:

- WBEM to deliver the essential capabilities required to manage all HP server platforms
- SMI-S to discover and manage the storage systems it supports

# Installing Systems Insight Manager and Command View EVA

Please refer to the manuals at the following links for more information regarding the installation and setup of HP Systems Insight Manager and HP Command View EVA:

HP SIM: <http://h18013.www1.hp.com/products/servers/management/hpsim/index.html>

HP CVEVA: <http://h18006.www1.hp.com/products/storage/software/cmdvieweva/index.html>

## Command View EVA deployment options

Command View EVA can be installed on a server called server-based management (SBM). On certain models, it can also be installed on the EVA's management module, called array-based management (ABM). The way that Command View EVA is deployed affects the way it interacts with Systems Insight Manager.

**Option 1:** Command View EVA (SBM) and Systems Insight Manager on separate servers

**Option 2:** Command View EVA (SBM) and Systems Insight Manager on the same server

**Option 3:** Command View EVA (SBM) and Command View EVA (ABM) and Systems Insight Manager

**Option 4:** Command View EVA (ABM) and Systems Insight Manager

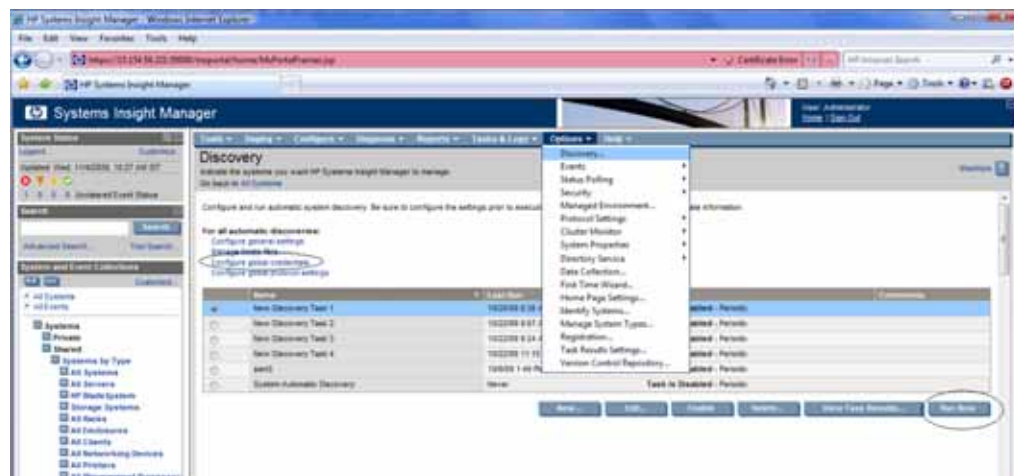
Note that for options 3 and 4, the IP address of CV EVA on the ABM module must be added to the SMI-S proxy list. This procedure is detailed in the [Configure HP SIM and HP CVEVA on a Single Server](#) section.

## Discovering EVAs in Systems Insight Manager

Following are the steps to be followed for HP SIM to discover each CV instance and the EVAs

1. Launch HP SIM and click on Options → Discovery. Refer Figure 1.1 below.

Figure 1.1: Add a new discovery task—Step 1



2. Click on the “New” button to create a new discovery task. Choose either of the two options “Discover a group of systems” or “Discover a single system” accordingly. To discover a group of systems, follow the “Help with Syntax” link on the HP SIM GUI. By default, the Schedule option is selected. Unselect it if not needed as it is possible to re-schedule it later. Refer Figure 1.2 below.

Figure 1.2: Add a new discovery task—Step 2



3. Click on the “Credentials” button seen in Figure 1.2 and then enter the sign-in credentials for HP CVEVA. Refer Figure 1.3 below.

**Note:**

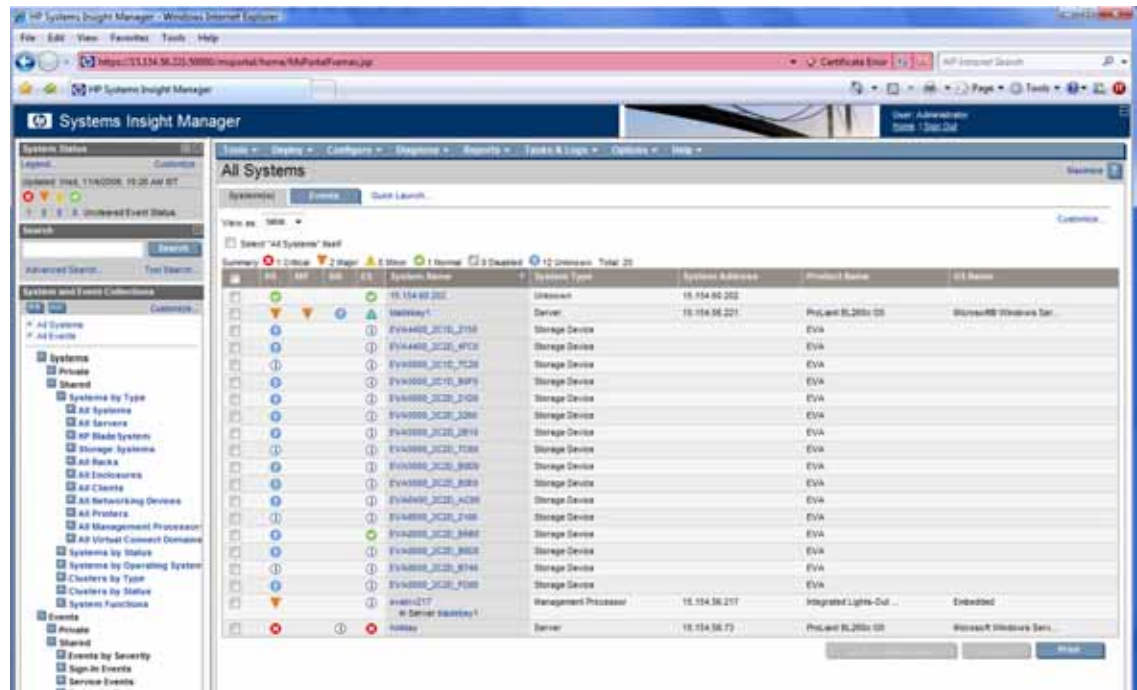
Additionally it is possible to configure global credentials using the “Configure Global Credentials” link seen in Figure 1.1.

Figure 1.3: Add new discovery task—Step 3



4. The newly created discovery task appears in the “Options → Discovery” page. Select the new discovery task and click on “Run Now” button to start the discovery and initial data collection. Refer Figure 1.1.
5. Once the Discovery and Initial Data Collection completes, Click on “All Systems” link in the Navigation Pane to see all the discovered systems. Select a particular system and browse through it for detailed information. Refer Figure 1.4 below.

Figure 1.4: View all the Discovered Systems



**Note:**  
Place the mouse pointer over a specific state like “?”, “i”, “!” to get more information about the problem state.

## Centralizing Event Notifications

There are two ways in which HP SIM can receive events. Both the options are detailed below.

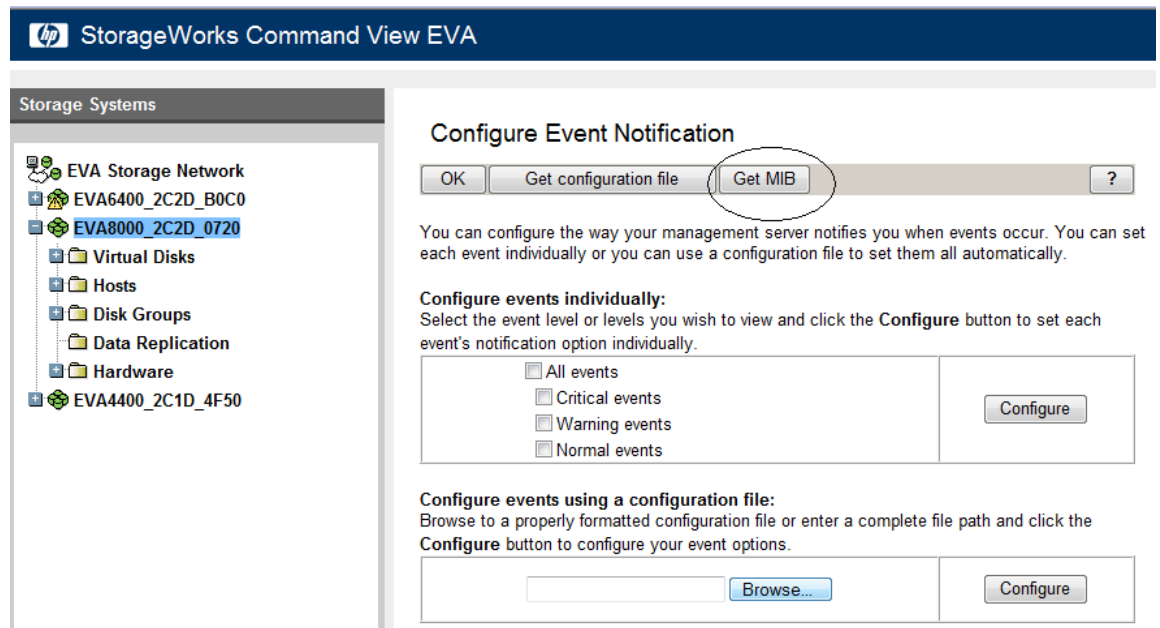
6. SNMP
7. WBEM

### SNMP

1. From HP CVEVA, configure the following under “System Options:”
  - a. **SNMP event notification:** Select all/specified events to be notified, and save the changes.
  - b. **SNMP host notification:** Add the IP address of HP SIM server and save the changes.

2. Ensure SNMP services are running on both HP SIM and HP CVEVA servers. The Windows Service Manager can be used to check for SNMP services that include "SNMP Service" and "SNMP Trap Service." If these two components are not found in Windows Service Manager, go to Windows "Add or Remove Programs" and click on "Add/Remove Windows Components." In the Windows Component Wizard that appears, select "Management and Monitoring Tools" and install it. If HP SIM and HP CVEVA reside on a single server, check for SNMP services only on that server.
3. From CV, go to System Options → Configure SNMP/event log notification → Configure events for SNMP/event log notification. Click on "Get MIB" button to download and save the MIB files for the required EVA Types. The MIB file is saved with extension (.mib.idi). Remove the (.idi) extension and save it with only (.mib) extension. Refer Figure 2.1 below.

Figure 2.1: Locating the MIB File from HP CVEVA



4. Copy the MIB saved to the following location on the HP SIM server: C:\Program Files\HP\System Insight Manager\mibs\.
5. Open a cmd window on HP SIM server and go the following path: C:\Program Files\HP\System Insight Manager\mibs.
6. Execute the following command "mcompile <MIB file>"; for example, "mcompile eva6400.mib." This operation will generate a .cfg file, here in our case eva6400.cfg.
7. The following output will appear on cmd window as shown in the following Figure 2.2.



Figure 2.2: Compiling the MIBs in HP SIM

```
Administrator: C:\Windows\system32\cmd.exe
C:\Program Files (x86)\HP\System Insight Manager\mibs>mcompile eva6400.mib
HP Systems Insight Manager Mib Compiler, Version 5.0.2.1
Copyright (c) 2003-2006 Hewlett Packard Corporation

Compiling eva6400.mib

Processing import file: RFC1155-SMI.mib
Processing import file: RFC-1212.mib
Processing import file: rfc1213.mib
Processing import file: RFC-1215.mib
Mib Compilation completed successfully

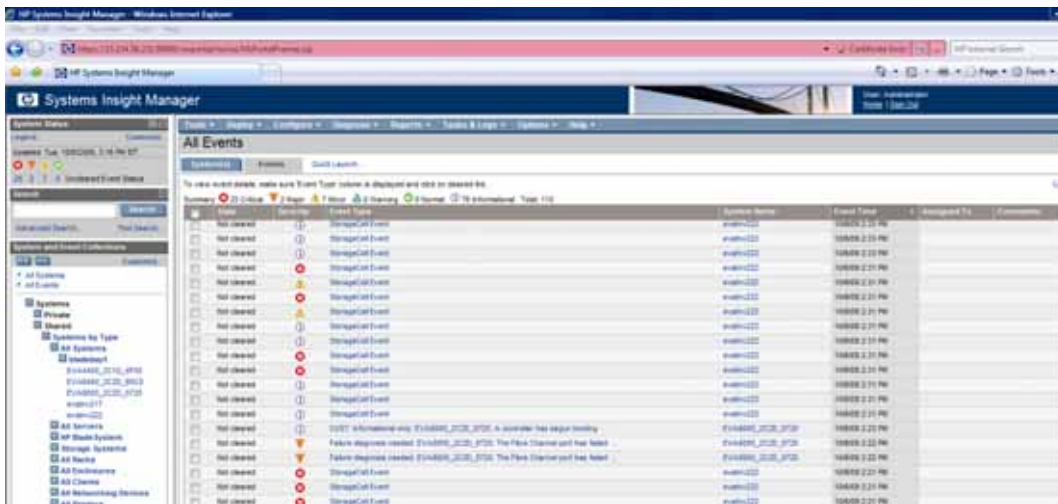
C:\Program Files (x86)\HP\System Insight Manager\mibs>_
```

8. Restart the “HP Systems Insight Manager” service.

### Screenshot of events from HP SIM

- Click on “All Events” link from the navigation pane to see all the events. Refer Figure 2.3 below.

Figure 2.3: Snapshot of events from HP SIM



## Sample SNMP Events

- The keyword (SNMP) will be prefixed before every SNMP event as seen in Figure 2.4 below.

Figure 2.4: SNMP Events



Event Identification and Details	
Event Severity	Critical
Occurred Status	Not observed
Event Source	event022
Administrated System	event022
Administrated System Status	Normal
Event Time	Tue, 10/6/2010, 2:21 PM EDT
Description	Severity: undetermined -- more information needed to determine severity. The state of the Fibre Channel port identified in the attribute value id field and located on the rear panel of the HCV110 controller identified in the handle field has transitioned to the FAILED state. The attribute type field contains the value 4. The value id field contains the new state: 2 (FAILED). The value id contains the old state: 1 (NORMAL). Note that the HCV110 controller's internal identity of the affected Fibre Channel port is contained in the secondary_id field.
Assignment	
Comments	

Trap Details	
Trap Description	Event
The StorageCell Name, Date & Time of Event	StorageCell: 6-Oct-2010 16:40
The Event Code Software Component ID	0
The StorageCell Event Code event number	205
The event code Corrective Action Code	105
The Event Code EP Type	5
MB Information	The associated MB File Name for this trap is cephnet110v3.mib and the MB identifier CPHQ110V3-MIB

## WBEM

### WEBES and EVA 4400

The release of Command View V9.1 onwards for ABM includes ELMC (WCCProxy) running on the ABM. This allows WEBES a connection point to the array event data.

WEBES retrieves Managed Entity information from HP SIM when operating on the RSA CMS. A key point to remember is HP SIM communicates to the array via WBEM protocol using the SMI-S provider and WEBES communicates to the array using a network connection to ELMC (WCCProxy).

Follow these steps to setup HP SIM and WEBES to monitor the array.

### Remote Support Advanced (RSA)

Setup the Command View Protocol credentials in the WEBES UI first. This enables the correct ELMC protocol to be selected when WEBES discovers the array and ABM.

The ABM firmware does not include SNMP or WBEM agents to support HP SIM communication for retrieval of hardware information. This requires the manual setting of certain fields. The HP SIM System and Entitlement information is tightly coupled to the WEBES Managed Entity information. WEBES detects the presence of HP SIM and populates the Managed Entity information from what is found in the HP SIM defined for newly added systems or changes made to existing systems. For more details on WEBES, IRSS (Insight Remote Support Standard), and IRSA (Insight Remote Support Advanced) refer to manuals available at:

<http://h18023.www1.hp.com/support/svctools/webes/index.html>

<http://h18013.www1.hp.com/products/servers/management/insight-remote-support/index.html>

<http://h18013.www1.hp.com/products/servers/management/insight-remote-support/supportpack/index.html>

The synchronization of this information has been found to cause the entity discovered by WEBES to be left in an incomplete and unrecoverable state if any of the required fields are missing. This may require deleting the Managed Entity from WEBES UI and re-discovering it once all the required information is entered in HP SIM. Re-discovery is triggered by stopping and re-starting the `DESTA_Service`.

### Steps to setup EVA 4400 and ABM in HP SIM

- Discover the EVA 4400 array (managed by ABM) in HP SIM by performing a discovery to the server running SMI-S that has been setup to connect to the ABM using `discoverer.bat` (refer section [Configure HP SIM and HP CVEVA on Single Server](#) on how to use `discoverer.bat` to setup SMI-S to connect to ABM) or a SMS running SMI-S and managing the array.
- Edit the System Properties in HP SIM for the discovered EVA array including the Contract and Warranty information, Site Name and Primary Contact. These are required field before HP SIM can present this entitlement data to WEBES Managed Entity. The Customer-Entered Serial Number and Customer-Entered Product Number are not required for EVA 4400 array as WEBES retrieves this information from the array for the EVA Managed Entity.
- In HP SIM discover the ABM (by providing the IP address of ABM module) and set the System Name to be the fully qualified domain name for the ABM. This is required for WEBES Managed Entity to correctly detect and add the ABM as a connection for the EVA.
- Edit the System Properties in HP SIM for the discovered ABM. Note that this is a placeholder in the HP SIM System List but there are fields required for WEBES to create a Managed Entity and pass the Remote Support Eligibility (RSE) list check. Fill in the following fields:
  - System type = Storage Device
  - System subtype = Storage
  - Product Model = EVA ABM

In Figure 2.5 below, the text EVA is required for the RSE check. ABM is included is included in this example as a way to differentiate between the ABM and array in the HP SIM UI.

Figure 2.5: ABM Module System Properties—Section 1

**Edit System Properties**  
i2-hpux-150.ind.hp.com  
[Go back to i2-hpux-150.ind.hp.com \(EVA ABM\)](#)

**Product Description**

System type:	Storage Device
System subtype 1:	Storage
System subtype 2:	<make selection>
System subtype 3:	<make selection>
System subtype 4:	<make selection>
System subtype 5:	<make selection>
System subtype 6:	<make selection>
System subtype 7:	<make selection>
System subtype 8:	<make selection>
Product model:	EVA ABM
Hardware description:	EVA4400 ABM
Operating system description:	
Operating system for tool filtering:	Windows
Operating system version:	

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**Note:**

In Figure 2.5 above, the Hardware description has also been populated for the ABM. This is not required but is a convenient location to add information presented in the HP SIM UI.

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- Entitlement Information:
  - Customer-Entered Serial Number
  - Customer-Entered Product Number

This information can be obtained from  
Command View UI → *array-name* → Hardware → Controller Enclosure  
These fields are required for WEBES to set up the ABM Entity correctly.

- Site name
- Primary customer contact

Refer Figure 2.6 below for Entitlement Information, Site name, and Primary customer contact.

---

Figure 2.6: ABM Module System Properties—Section 2

The screenshot shows the 'Edit System Properties' page for the system 'l2-hpux-150.ind.hp.com'. The 'Contract and Warranty Information' section is expanded, showing the following fields:

- Entitlement Information:**
  - Customer-Entered serial number: SGA81500AM
  - Customer-Entered product number: AG637A
  - System Country code: [Choose a country]
  - Entitlement type: [Dropdown menu]
  - Entitlement ID: [Text input]
  - Obligation ID: [Text input]
  - Custom Delivery ID: [Text input]
- System Site Information:**
  - Site name: \* FT06 SAN Lab [Dropdown menu] [Manage Sites...]
- Customer Contact:**
  - Primary customer contact: \* ABC XYZ [Dropdown menu] [Manage Contacts...]
  - Secondary customer contact: [None selected] [Dropdown menu]
  - Primary service contact: [None selected] [Dropdown menu]

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WEBES Managed Entity UI should now display the EVA 4400 array and the ABM Module.

## Remote Support Standard (RSS)

WEBES cannot get the entitlement information from HP SIM since it is not installed on the RSS. The Managed Entity information is entered manually using the WEBES Managed Entity UI. Perform these steps to add the EVA 4400 array.

- Add the ABM Module to the WEBES Managed Entity UI using the fully qualified domain name. The ABM entity will show up in the Managed Entity UI as needing information which is denoted by the orange bar status. Refer Figure 2.7 below.

Figure 2.7: WEBES Managed Entity—Step 1

	<u>Entity Name</u>	<u>System Type</u>	<u>Last Collection</u>
* <input type="checkbox"/> ID	<a href="http://sele1tbn.fc.hp.com">sele1tbn.fc.hp.com</a>	ManagedSystem-CommandView EVA Server	No Collections Present

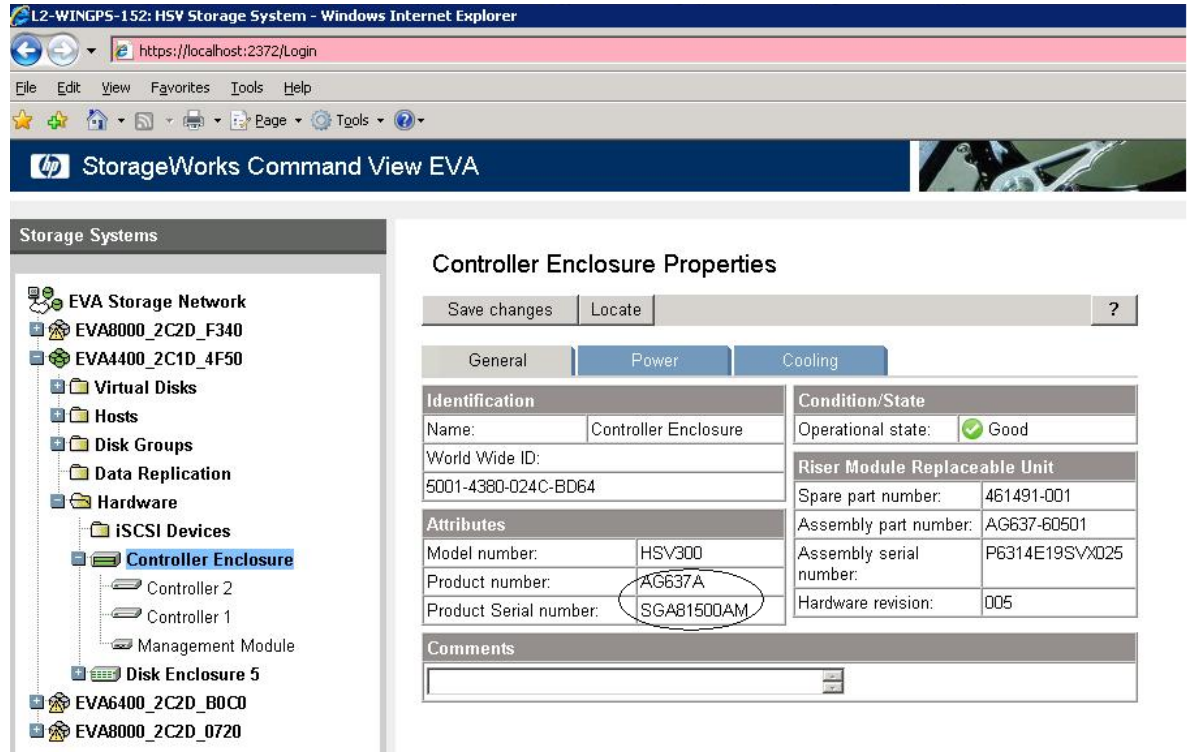
- When selecting the ABM Entity Name you will find blank fields needing information for Entitlement Serial Number and Entitlement Model Number. Refer Figure 2.8 below.

Figure 2.8: WEBES Managed Entity—Step 2

* Entitlement Serial Number	<input type="text"/>
* Entitlement Product Number	<input type="text"/>

- Add the information required for the ABM entity by filling in the Entitlement Serial Number and Entitlement Model Number. These fields are required to have information added before WEBES can attempt to connect and discover the array.
- This information can be obtained from Command View UI → array-name → Hardware → Controller Enclosure. Note these fields are required for WEBES to set up the ABM entity correctly. Refer Figure 2.9.

Figure 2.9: Controller Enclosure Information



- Once the required information is added and saved, WEBES will connect to the ABM Module and discover the EVA 4400

Note that the Managed Entity information for the EVA 4400 array like Serial Number and Model Number have been filled in by the WEBES discovery of the array as well as the WWN, UUID, and path to the array. Refer Figure 2.10.

Figure 2.10: WEBES Managed Entity Properties for EVA 4400 array

<i>Setting</i>	<i>Value</i>
User-Definable Entity Name	<input type="text" value="EVA_LE1"/>
Entity Name on the Network	<input type="text" value="EVA_LE1"/>
System Type	EVA
System Subtype	<input type="text" value="EVA"/>
Operating System	
Storage cell WorldWideName	5000-1FE1-1111-2000
Storage cell UUID	10070008600508B40006A0870003D00000030000
Storage cell management host	sele1tbn.fc.hp.com
Warranty Check	<a href="#">Check</a>
Entitlement type	<input type="text" value="Warranty"/>
Entitlement Serial Number	<input type="text" value="SGA7440001"/>
Entitlement Product Number	<input type="text" value="AG637A [HSV300 - EVA4400]"/>

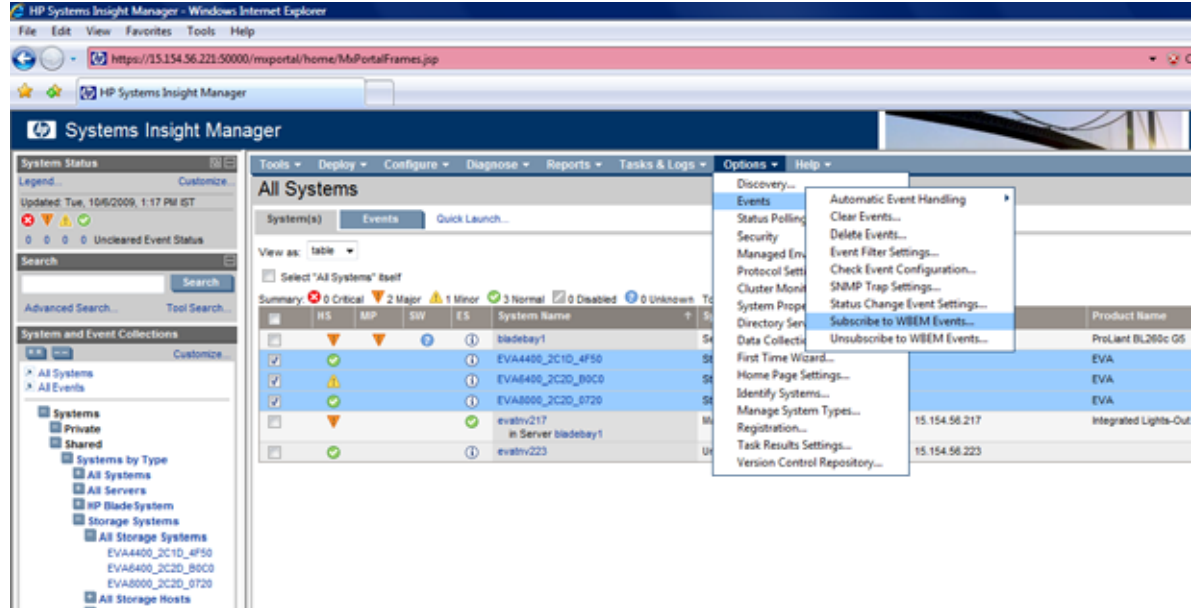
### Settings to be done in HP SIM to receive events via WBEM

1. From HP SIM, first subscribe to WBEM events by selecting all the EVA's and then click on Options → Events → Subscribe to WBEM Events as shown in the following Figure 2.11.

**Note:**

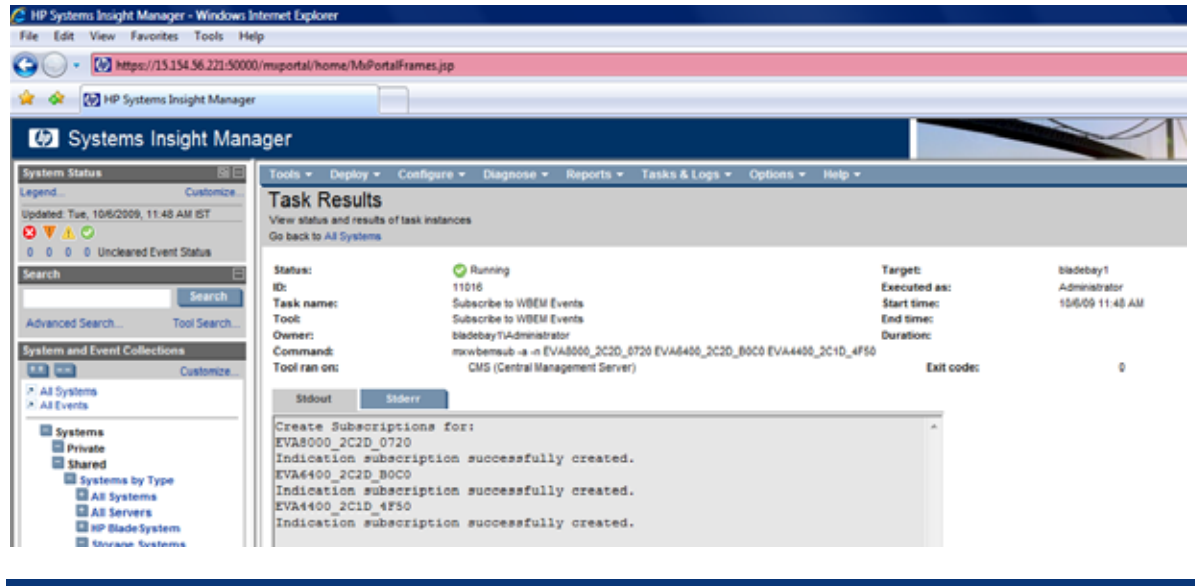
To Unsubscribe from WBEM events use Options → Events → Unsubscribe to WBEM Events

Figure 2.11: How to Subscribe to WBEM Events from HP SIM—Step 1



- Once clicked, follow the “Step1: Verify Target System” and “Step2: Task Confirmation” and click on “Run Now.” Once the operation is complete, subscription to WBEM events will be shown as successful. Refer Figure 2.12 below.

Figure 2.12: How to Subscribe to WBEM Events from HP SIM—Step 1





## Sample WBEM Events

- The keyword (WBEM) will be prefixed before every WBEM event as seen in Figure 2.13 below.

Figure 2.13: WBEM Events

**Event Details: (WBEM) CUST: Informational only: EVA8000\_3C2D\_0720: A controller has begun booting**

**Event Identification and Details**

Event Severity	Informational
Cleared Status	Not cleared
Event Name	EVA8000_3C2D_0720
Associated System	EVA8000_3C2D_0720
Associated System Status	Warn
Event Time	Tue, 10/6/2009, 2:23 PM IST
Description	CUST: Informational only: EVA8000_3C2D_0720: A controller has begun booting
Actions	
Comments	

**HP WBEM Event Details**

IndicationIdentifier	164003.aaadebay2@1254819108946.1254819229062
IndicationTime	Tue, 10/6/2009, 2:23 PM IST
PriorityOrSeverity	Information
Description	CUST: Informational only: EVA8000_3C2D_0720: A controller has begun booting
AlertingManagerCommand	HTTP://15.154.56.222/ostivva.HPEVA_StorageProcessors/SystemName="500000B401030723 PE380FAAR300"/CreatorClassName="HPEVA_StorageProcessorSystem"
AlertingServiceURL	CMDocPath
AlertType	Device Alert
ProbableCause	Other
ProbableCauseDescription	CUST: Informational only: EVA8000_3C2D_0720: A controller has begun booting. FRU Loc: System Identification - Storage System Name: EVA8000_3C2D_0720 Storage System World Wide ID: 5005-0084-0103-0720-01 Version: Winbosa 5.2 Service Pack 2 build 3790 Device Type: HSV Controller Logging Controller: Serial Number: PE380FAAR300 CommandView Version: 9.02.00.090904 Is Storage System Name? NO The XCS controller is NOT a CRU type WWR of the controller: 5005-0084-0010-3072 -FRU Location: WWR of the controller: 5005-0084-0010-3072
EventID	164003.aaadebay2@1254819108946
EventTime	Tue, 10/6/2009, 2:21 PM IST
SystemCreationClassName	HPEVA_StorageSystem
SystemName	500000B401030720
ProcessorName	EVA82-Dev6
RecommendedAction	No action necessary. Controller Model ID: HSV210 WWR of this controller: 5005-0084-0010-3072

### Note:

The advantage of using WEBES over SNMP is that WEBES provides a higher quality event as an Alert Indication. If WEBES is configured to send "Type 3" traps, SMI-S provider will include event severities in alert indications sent to HP SIM.

### Actions that can be taken based on events from HP SIM

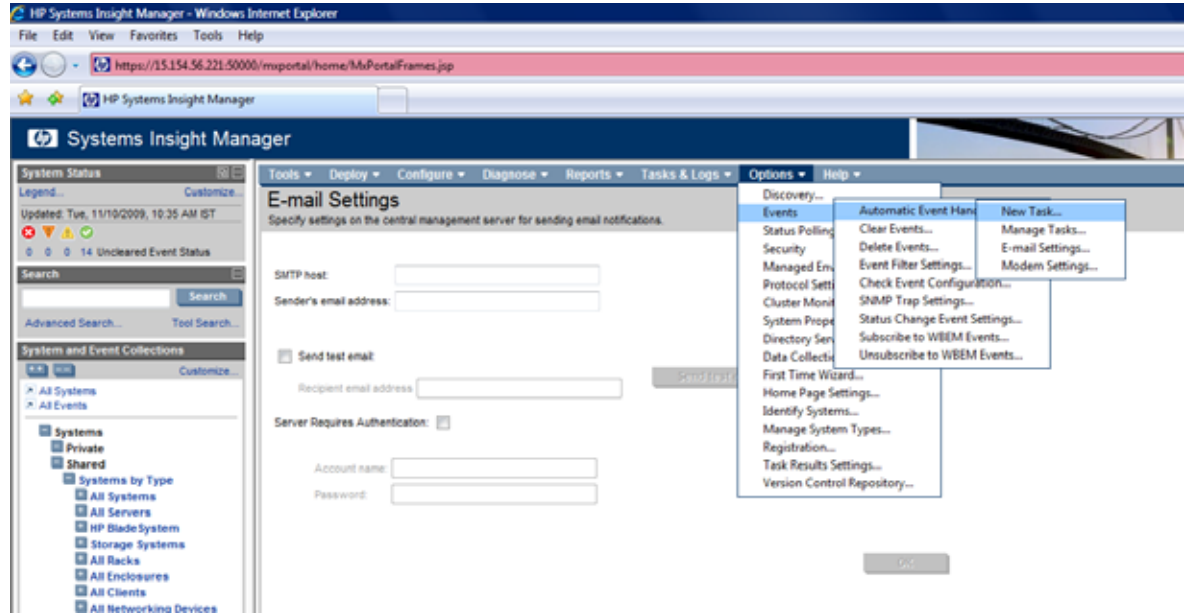
The following actions can be taken from HP SIM based on events generated.

- Send page
- Send e-mail
- Run custom CMS tool
- Assign
- Forward as SNMP trap
- Write to system log
- Clear event

To understand how to configure actions, explore the following two links from HP SIM. Refer Figure 2.14.

- Options → Events → Automatic Event Handling → New Task
- Options → Events → Automatic Event Handling → E-mail Settings

Figure 2.14: Define a new task to do a particular action based on events



**Note:**

The HP SIM user guide has more detailed information about this topic.

# Launching HP CVEVA from Systems Insight Manager

To launch HP CVEVA from HP SIM, follow the steps defined below.

1. Expand this path in the navigation pane.
  - a. Systems → Shared → Systems by Type → Storage Systems → All Storage Systems
2. Click on a particular EVA already discovered.
3. Now in the content pane, the following four different tab windows can be seen.
  - a. System
  - b. Tools & Links
  - c. Events
  - d. Essentials
4. Click on Tool & Links tab
5. Click on the link “URL of the Command View EVA web-based element manager”
6. Now HP CVEVA login page will be displayed asking for username and password. Enter the HP CVEVA login credentials and get started. Refer the following Figure 3.1.

Figure 3.1: Launching HP CVEVA from HP SIM



# Configure Trust Relationship in HP CVEVA for HP SIM

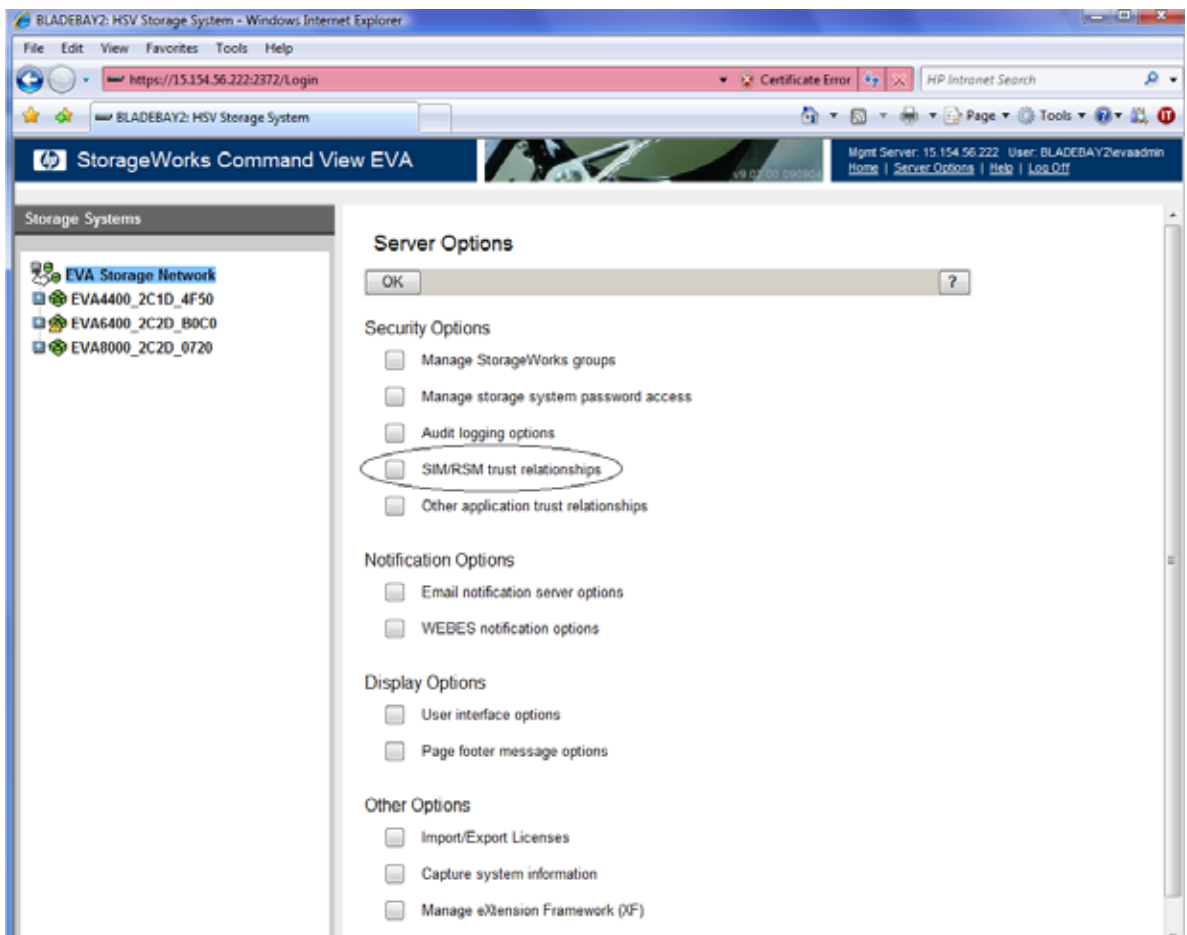
**Important:** Currently the SSO feature is disabled for HP CVEVA in HP SIM. However the below procedure explains how to configure SSO in HP SIM for HP CVEVA. This feature is enabled in HP SIM 6.0 and HP CVEVA 9.2

Adding a trust relationship enables you to automatically log on to HP Command View EVA from HP Systems Insight Manager. This feature is sometimes called single sign-on (SSO). HP Command View EVA imports a certificate from a trusted source, like HP Systems Insight Manager. Users who are authenticated by HP Systems Insight Manager are then allowed to automatically authenticate with HP Command View EVA without logging in again.

If you prefer to have HP Command View EVA users log in each time, do not create the trust relationship. Use the “Uninstall Certificates” button to remove the trust relationship and require each user to log in to HP Command View EVA.

1. Launch HP CVEVA. Go to Server Options and click on SIM/RSM trust relationships as shown in Figure 4.1 below.

Figure 4.1: Trust Relationship—Step 1



2. Click on Install Certificate after entering the HP SIM server IP address as shown in Figure 4.2 below.

Figure 4.2: Trust Relationship—Step 2



Once the above steps are done, the trust relationship will be established successfully as shown in Figure 4.3 below.

Figure 4.3: Trust Relationship—Step 3



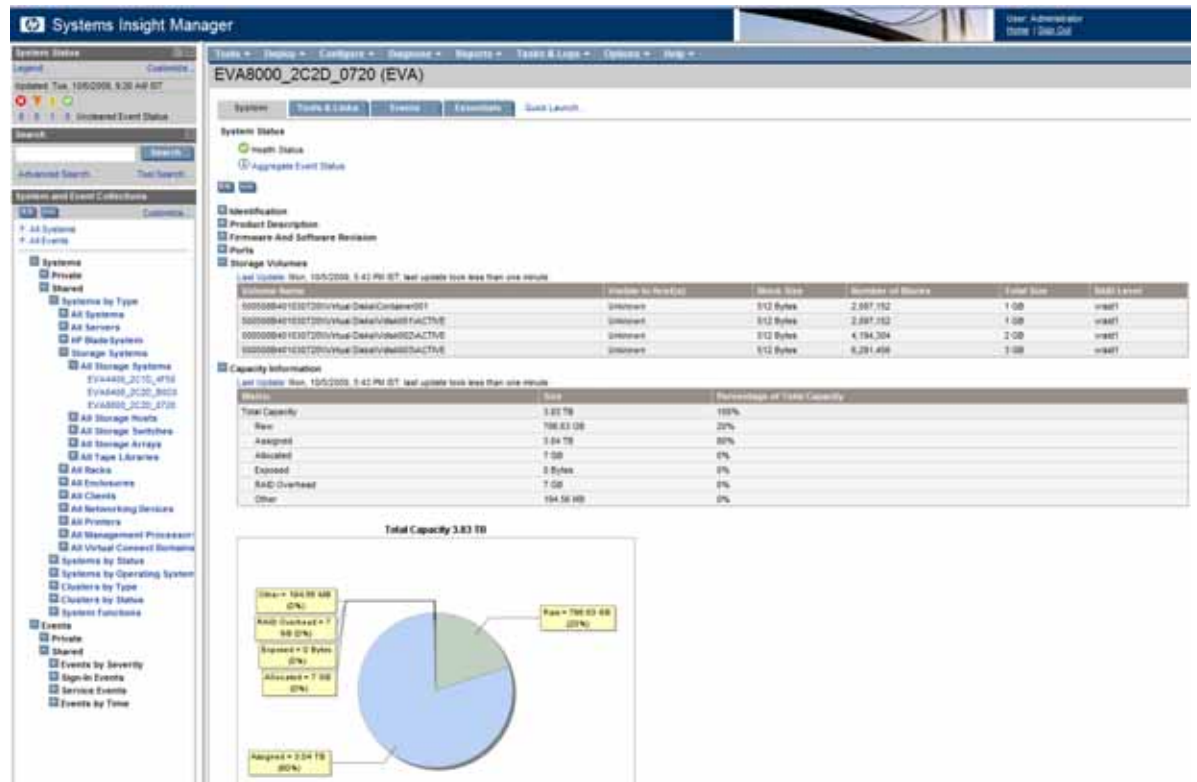
## Viewing EVA LUNs and Capacity Information from Systems Insight Manager

To view the EVA LUNs, follow the steps defined below.

1. Expand this path in the navigation pane.
  - a. Systems → Shared → Systems by Type → Storage Systems → All Storage Systems
2. Click on a particular EVA already discovered.

3. Now in the content pane, the following categories will be seen under “System” tab
  - a. Identification
  - b. Product Description
  - c. Firmware and Software revision
  - d. Ports
  - e. Storage Volumes
  - f. Capacity Information
4. Expand the Storage Volumes tree to see all the LUN’s for that particular EVA. Also, EVA Storage Capacity information can be seen from HP SIM by expanding the Capacity Information tree. Refer Figure 5.1 below.

Figure 5.1: LUN and Capacity Information



**Note:**

To get information about LUNs presented to a host, discover the host to which the LUNs are presented from HP SIM.

# Configure HP SIM and HP CVEVA on Single Server

## Port Settings

The default port assignment of 5989 for WBEM/WMI and SMI-S has posed a conflict for several versions. The following information is intended to describe changes that address this port assignment subject and provide a new solution for setting up HP SIM with Command View SMI-S on the same server.

The sequence of installation for HP SIM and Command View SMI-S on a CMS will have some affect on what the default ports will be set to. The current Best Practices suggestion is to install HP SIM first and allow the WMI Mapper to use the default port 5989. The subsequent Command View install can detect if the port 5989 is in use and redirect to a different port.

Get a snapshot of the Customer environment for the current assigned ports. This can be done from a command window by executing the following command:

```
C:\ netstat -anb >netstat.txt
```

## HP SIM

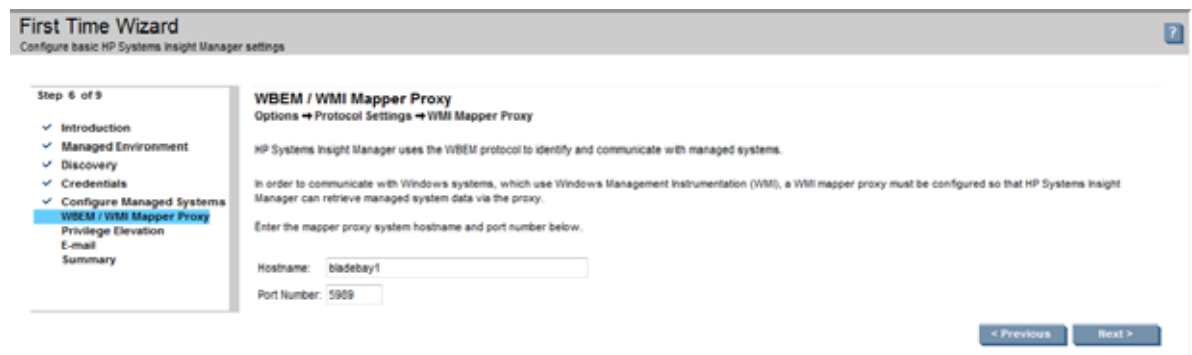
The steps that follow are broken into two groups,

- New Installation
- Correcting an Existing Installation

## New Installation

During the installation of HP SIM, the First Time Wizard has a step to configure WBEM/WMI Mapper Proxy. Refer Figure 6.1 below.

Figure 6.1: WBEM/WMI Mapper Proxy—First Time Wizard



Keep the default setting of port 5989. After completing the installation of HP SIM add the port that Command View SMI-S will be using to the xml file shown in the example below.

The next steps will identify the port that HP SIM will use to connect to SMI-S. In this example, we use port 60000 for SMI-S https connection to the interop namespace.

- Edit the following file:  
C:\Program Files\HP\System Insight Manager\config\identification\wbemportlist.xml
- Add the following lines of text to the bottom. Note that the lines in **BLUE** are the new lines to add.

Example of the complete text in this file after adding the port for SMI-S:

```
<?xml version="1.0" encoding="UTF-8"?>
<wbemportlist>
  <port id="5989" protocol="https">
    <cimnamespacelist>
      <cimnamespace name="root/cimv2"/>
      <cimnamespace name="vmware/esxv2"/>
      <cimnamespace name="root/hpq"/>
    </cimnamespacelist>
    <interopnamespacelist>
      <interopnamespace name="root/pg_interop"/>
      <interopnamespace name="root"/>
      <interopnamespace name="root/emulex"/>
      <interopnamespace name="root/qlogic"/>
      <interopnamespace name="root/ibm"/>
      <interopnamespace name="root/emc"/>
      <interopnamespace name="root/smis/current"/>
      <interopnamespace name="root/hitachi/dm51"/>
      <interopnamespace name="interop"/>
      <interopnamespace name="root/interop"/>
      <interopnamespace name="root/switch"/>
      <interopnamespace name="root/cimv2"/>
    </interopnamespacelist>
  </port>
  <port id="60000" protocol="https">
    <interopnamespacelist>
      <interopnamespace name="interop"/>
    </interopnamespacelist>
  </port>
</wbemportlist>
```

- Save the changes
- Restart the HP System Insight Manager service



## Correcting an Existing Installation

**IMPORTANT:** Do not execute the following steps if this is a first time install of HP SIM. The following steps are to be executed only if HP SIM has already been installed and the WMI Mapper port has been changed to something (say 6989) other than the default (5989).

Follow these steps to restore WMI Mapper port back to the default port. Note that the changes made in the `cimserver_planned.conf` file will be moved into the file named `cimserver_current.conf` once the service is restarted.

- Stop the Pegasus WMI Mapper Service
- Edit the `C:\Program Files\The Open Group\WMI Mapper\cimserver_planned.conf` file
- Update the port number in the line that has “`httpsPort=6989`” to 5989  
(The port number may have been set to something other than this example)
- Save the file
- Restart the Pegasus WMI Mapper Service
- Run the `netstat` command and verify the change took place

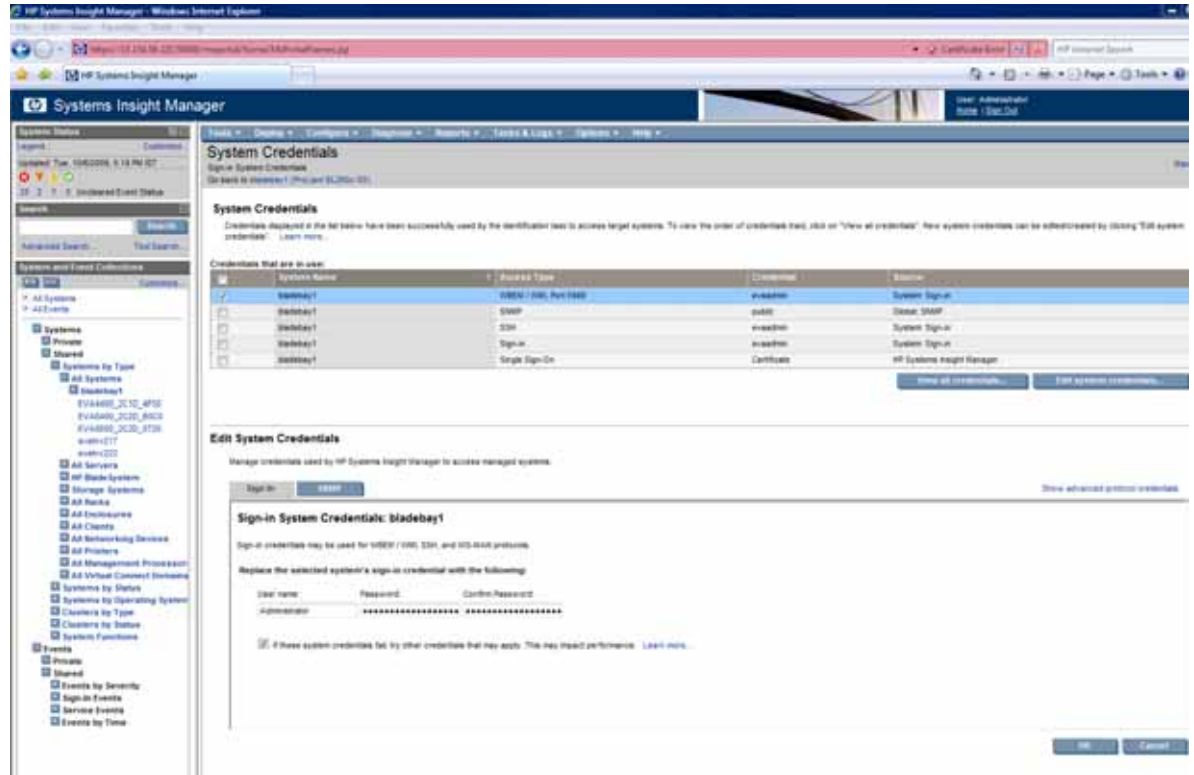
This is an example of the text in `cimserver_planned.conf`:

```
enableRemotePrivilegedUserAccess=true
enableHttpsConnection=true
enableHttpConnection=false
sslCertificateFilePath=C:\hp\sslshare\cert.pem
sslKeyFilePath=C:\hp\sslshare\file.pem
httpsPort=5989
```

Change the WMI Mapper Proxy port in the HP SIM GUI:

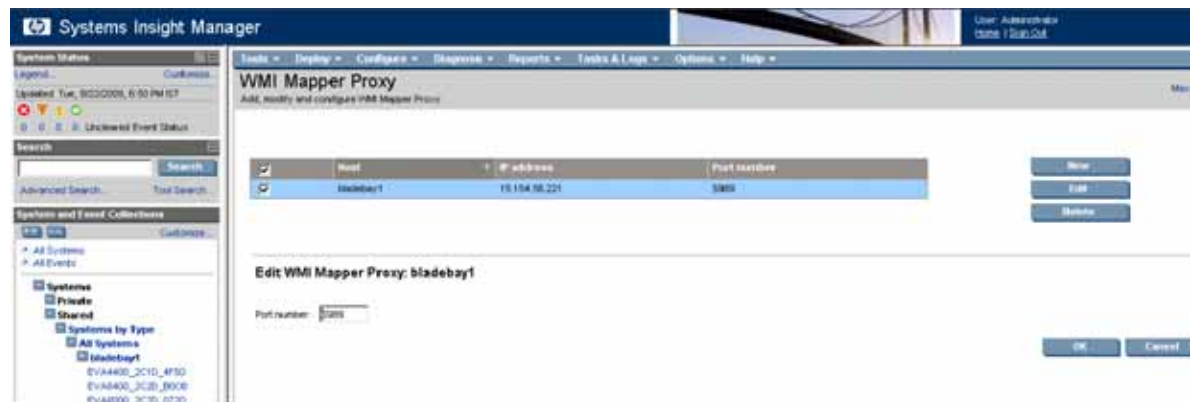
- Login to HP SIM GUI with Administrative privileges
- Verify credentials for the CMS itself are correct
  - Open the all systems list and Select the HP SIM CMS from the system list
  - Select the “Tools & links” tab
  - Click on “System Credentials” link
  - Select the check box preceding the CMS instance of WMI Mapper running on the localhost.
  - Click on “Edit system credentials” button.
  - Verify that either the sign-in credential exists and is correct for the CMS (preferred), or there are “Advanced” WBEM settings. Verify that the port number is 5989 and credential is correct for the WMI Mapper. Refer to the following Figure 6.2.

Figure 6.2: CMS System Credentials



- Open Options → Protocol Settings → WMI Mapper Proxy.
- Select the radio button preceding the CMS instance of WMI Mapper running on the localhost.
- Click the Edit button
- Enter 5989 in the “port number” field.
- Click OK to save. Refer to the following Figure 6.3.

Figure 6.3: WBEM/WMI Mapper Proxy—Protocol Settings



## Troubleshooting SIM connectivity to Command View SMI-S

If the discovery process fails to find the Command View server and gather information about the EVAs a tool called WBEMDISCO can be used to determine if the SMI-S provider is responding and that the credentials are correct. WBEMDISCO is installed automatically by SIM.

### Procedure to use WBEMDISCO

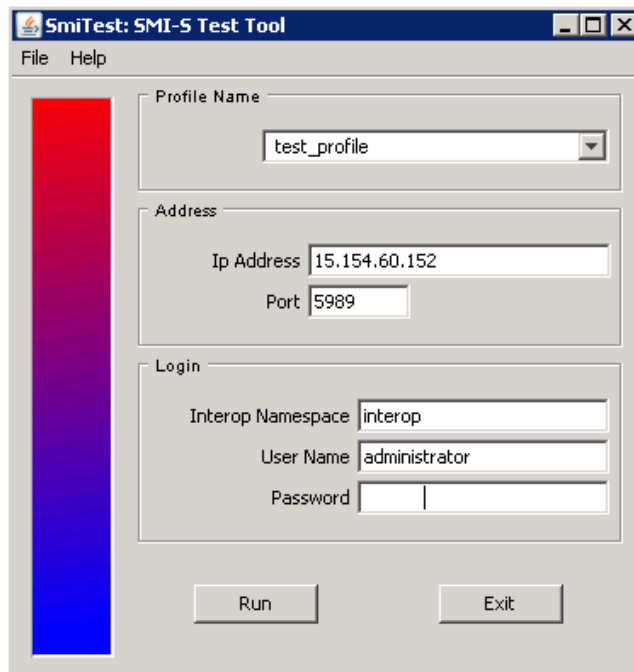
---

**Note:**

WBEMDISCO gets packaged along with HP SIM.

---

1. Open a cmd window.
2. Go to the following path C:\Program Files\HP\System Insight Manager. On a 64-bit version of Windows the path will be C:\Program Files (x86)\HP\System Insight Manager.
3. Invoke WBEMDISCO.CMD from command line.
4. The following window will appear:



5. Specify a name for the "Profile Name" field (optional).
6. Specify the IP address of the server where SMI-S is installed and the port (either http/https) on which SMI-S is running.
7. Specify the root namespace for CXWS Cimom which is "interop" along with SMI-S username and password credentials.
8. Click on "Run" button.
9. Once WBEMDISCO completes, the following output that lists the EVA's discovered can be seen in the "cmd" window.

```
Administrator: C:\Windows\system32\cmd.exe

C:\Program Files (x86)\HP\System Insight Manager>WbemDisco.cmd
C:\Program Files (x86)\HP\System Insight Manager>echo Wed 12/09/2009 11:21:28.48
Wed 12/09/2009 11:21:28.48
C:\Program Files (x86)\HP\System Insight Manager>echo off
WbemDisco 01.01.00
-----
Gui: Gui starting
Gui: Creating frame...
HOST = 15.154.60.152
PORT = 5989
NAMESP = interop
USER = administrator
PASSWD = *****
Connect to 15.154.60.152 in namespace interop with SSL=true

ObjectManager.Name=HP:CxwsCimom_15.154.60.152
ElementName=HP Cxws Server
CimomVersion=<missing>
Description=HP Cxws Server

Enumerating instances of CIM_RegisteredProfile...

Profile.RegisteredName=Server
RegisteredVersion=1.3.0
ProviderVersion=<missing>
SubProfile.RegisteredName=Profile Registration
Profile.RegisteredName=SMI-S
RegisteredVersion=1.3.0
ProviderVersion=<missing>
Profile.RegisteredName=Array
RegisteredVersion=1.3.0
ProviderVersion=9.2.0
HPVersion=EVA9.2-Dev20
SubProfile.RegisteredName=Software
SubProfile.RegisteredName=Masking and Mapping
SubProfile.RegisteredName=Copy Services
SubProfile.RegisteredName=Block Services
SubProfile.RegisteredName=Disk Drive Lite
SubProfile.RegisteredName=FC Target Ports
SubProfile.RegisteredName=FC Initiator Ports
SubProfile.RegisteredName=Job control
SubProfile.RegisteredName=Access Points
SubProfile.RegisteredName=Physical Package
SubProfile.RegisteredName=Multiple Computer System
SubProfile.RegisteredName=Block Server Performance
SubProfile.RegisteredName=SAS Initiator Ports
SubProfile.RegisteredName=Thin Provisioning
HPEVA_StorageSystem.Name="500508B401030720",CreationClassName="HPEVA_StorageSystem"
NameSpace = root/eva
Vendor=HP
Name=EVA
IdentifyingNumber=500508B401030720

C:\Program Files (x86)\HP\System Insight Manager>_
```

If the credentials are not correct, WBEMDISCO will display a message similar to this:

```
Administrator: Command Prompt

C:\Program Files (x86)\HP\System Insight Manager>wbendisco
C:\Program Files (x86)\HP\System Insight Manager>echo Wed 12/09/2009 10:47:40.66
Wed 12/09/2009 10:47:40.66
C:\Program Files (x86)\HP\System Insight Manager>echo off
WbemDisco 01.01.00
-----
Gui: Gui starting
Gui: Creating frame...
HOST = 15.154.60.152
PORT = 5989
NAMESP = interop
USER = test
PASSWD = *****
Connect to 15.154.60.152 in namespace interop with SSL=true
*** Error connecting with SSL=true - (CIM_ERR_ACCESS_DENIED) ***

C:\Program Files (x86)\HP\System Insight Manager>_
```

If this occurs, verify that the HP Storage Admins group on the Command View EVA server contains the user and password specified.

## Restoring defaults to wbemportlist.xml

- Edit the following file:

```
C:\Program Files\HP\System Insight  
Manager\config\identification\wbemportlist.xml
```

This would have been modified earlier with the following lines (in [BLUE](#)). This text needs to be removed.

```
<!-- WMI Mapper httpsPort=6989 -->  
<port id="6989" protocol="https">  
  <cimnamespacelist>  
    <cimnamespace name="root/cimv2"/>  
  </cimnamespacelist>  
</port>
```

- Add the following lines of text to the bottom. Note that the lines in [BLUE](#) are the new lines to add. Also, in this example the port number 60000 is being used as the https port for SMI-S

Here is an example of the complete text in this file with the added text in [BLUE](#):

```
<?xml version="1.0" encoding="UTF-8"?>  
<wbemportlist>  
  <port id="5989" protocol="https">  
    <cimnamespacelist>  
      <cimnamespace name="root/cimv2"/>  
      <cimnamespace name="vmware/esxv2"/>  
      <cimnamespace name="root/hpq"/>  
    </cimnamespacelist>  
    <interopnamespacelist>  
      <interopnamespace name="root/pg_interop"/>  
      <interopnamespace name="root"/>  
      <interopnamespace name="root/emulex"/>  
      <interopnamespace name="root/qlogic"/>  
      <interopnamespace name="root/ibm"/>  
      <interopnamespace name="root/emc"/>  
      <interopnamespace name="root/smis/current"/>  
      <interopnamespace name="root/hitachi/dm51"/>  
      <interopnamespace name="interop"/>  
      <interopnamespace name="root/interop"/>  
      <interopnamespace name="root/switch"/>  
      <interopnamespace name="root/cimv2"/>  
    </interopnamespacelist>  
  </port>  
  <port id="60000" protocol="https">  
    <interopnamespacelist>
```

```

        <interopnamespace name="interop"/>
    </interopnamespacelist>
</port>
</wbemportlist>

```

- Save the changes
- Restart the HP System Insight Manager service
- Go to Options → Identify Systems. Re-identify all WBEM/WMI systems in HP SIM to correct the port reference.

## HP Command View EVA

The CommandView EVA installation kit includes SMI-S as a component. SMI-S assigns only two ports at the time of installation. These are the default ports that SMI-S assigns if they are available,

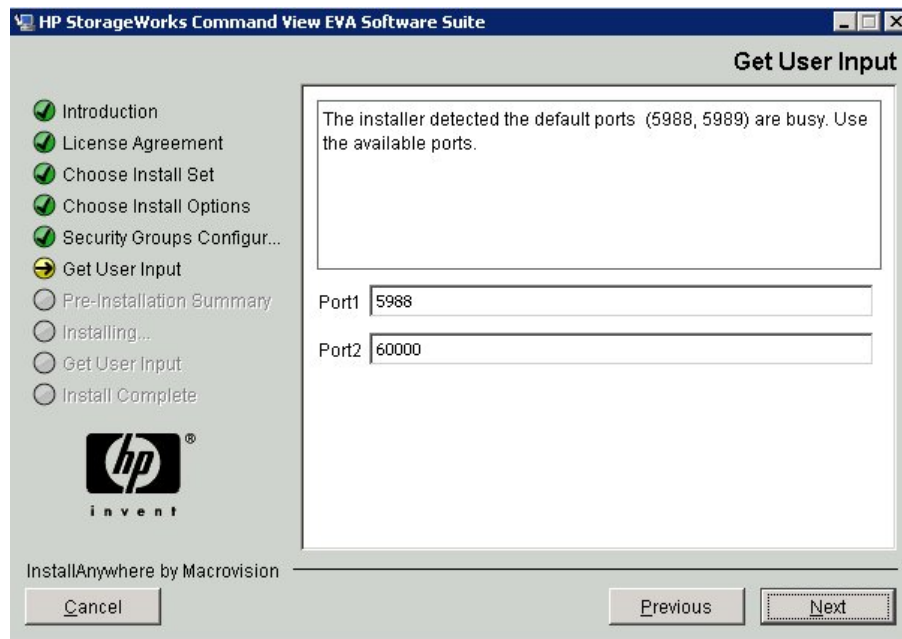
- http port=5988
- https port=5989

If one or both of these ports are in use, the installation will show an additional install screen that allows the port numbers to be changed. The SMI-S installer will suggest port 60000 if that port is not in use. SMI-S will retain port 5988 if it is not in conflict. SMI-S uses these ports when the HP StorageWorks CIM Object Manager process starts.

Note, this screen will only display if a port conflict is detected. That is why the sequence to install HP SIM before CommandView is being recommended.

Figure 6.4 is a screen capture of SMI-S install on a RSA host that already has HP SIM installed with WMI Mapper.

Figure 6.4: SMI-S Install on a RSA with HP SIM



Once set, these ports can be verified by executing the *netstat* command mentioned above. You will see the following output:

```
. . . . .
TCP 0.0.0.0:5988 0.0.0.0:0 LISTENING 1712 [JavaWrapper.exe]
TCP 0.0.0.0:5989 0.0.0.0:0 LISTENING 460 [WMIserver.exe]
. . . . .
TCP 0.0.0.0:60000 0.0.0.0:0 LISTENING 1712 [JavaWrapper.exe]
. . . . .
```

Note that in this example (Figure 6.4 above) SMI-S is setup to use 5988 and 60000.

#### **Procedure to reset the port numbers if Command View is already installed.**

- Edit the following file:  
C:\Program Files\Hewlett-Packard\SMI-S\CXWSCimom\config\cxws.properties
- Locate the `cxws.http.port` and `cxws.https.port` and set to these values  
`cxws.http.port=5988`  
`cxws.https.port=60000`
- Restart HP StorageWorks CIM Object Manager Service.

## Command View operating on the EVA 4400

The SMI-S provider cannot currently be installed on the ABM so SMI-S is required to be installed elsewhere in the LAN to serve as a proxy connection to the array.

The Command View installation kit allows for SMI-S to be installed on a server independently. SMI-S can be installed on the HP SIM CMS or any other server in the LAN.

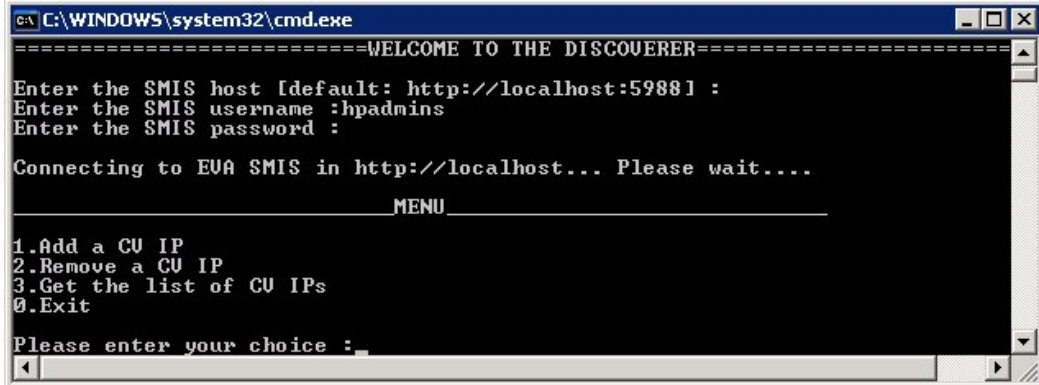
SMI-S includes a utility named `discoverer.bat` for setting up the connection to the array ABM. This allows the SMI-S to pass connection requests to the array by having the IP address and credentials for the target ABM. This procedure can be invoked by double clicking on the following file:

```
C:\Program Files\Hewlett-Packard\SMI-S\EVAProvider\bin\discoverer.bat
```

This will open a command window: Refer Figure 6.5 below.

Note that the first line has the <http://localhost:5988> defined as default for the path to where SMI-S is running. This http port may have been changed if operating on the CMS as described above in the Port Setting information. This is the http port. The second and third line requires the credentials of the account set up for HP Storage Group access. When these items are entered the MENU is displayed. Refer Figure 6.5.

Figure 6.5: Setup up SMI-S Proxy for ABM—Step 1



```
C:\WINDOWS\system32\cmd.exe
=====WELCOME TO THE DISCOVERER=====
Enter the SMIS host [default: http://localhost:5988] :
Enter the SMIS username :hpadmins
Enter the SMIS password :
Connecting to EVA SMIS in http://localhost... Please wait....
MENU
1.Add a CU IP
2.Remove a CU IP
3.Get the list of CU IPs
0.Exit
Please enter your choice :
```

- Select 1 to Add a CV IP.
- Enter the IP address and the credentials for Command View on the ABM. The IP Address of the HP CVEVA on ABM must get added successfully. Refer Figure 6.6 below.

Figure 6.6: Setup up SMI-S Proxy for ABM—Step 2

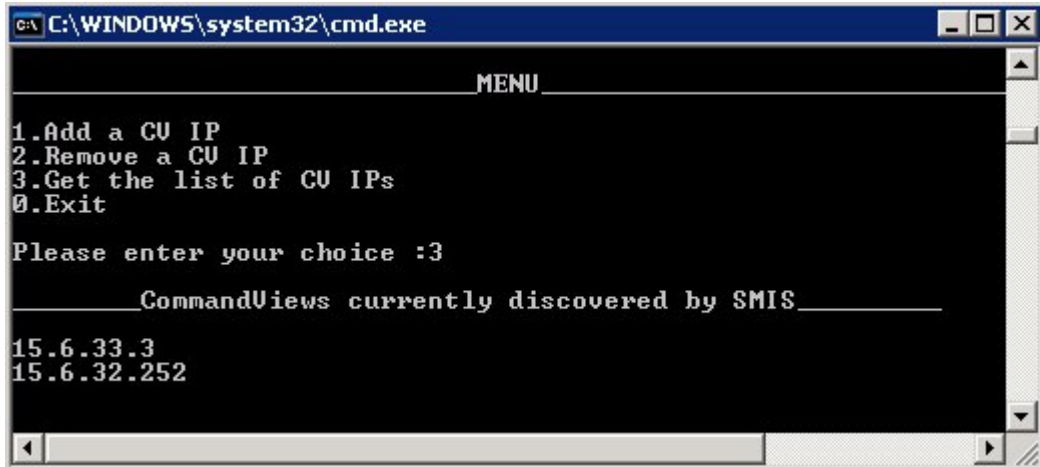


```
C:\WINDOWS\system32\cmd.exe
MENU
1.Add a CU IP
2.Remove a CU IP
3.Get the list of CU IPs
0.Exit
Please enter your choice :1
Enter the IP address of CommandView :15.6.32.252
Enter the CommandView username :hpadmins
Enter the CommandView password :
Operation in progress....Please wait....
Operation successful!!!
```

- Select 3 to view a list of the CV IPs. Refer Figure 6.7.



Figure 6.7: Setup up SMI-S Proxy for ABM—Step 3



Note that if Command View is installed on the local host running discoverer you will also see the IP address for the local host in this list.

- Enter 0 to exit the discoverer utility
- Restart “HP StorageWorks CIM Object Manager” Service.

Now that SMI-S has a connection to the ABM, HP SIM will discover the EVA 4400 array being managed on the ABM by doing a discovery of the server running SMI-S.

## Configure HP SIM and HP CVEVA on Different Servers

When HP SIM and HP CVEVA are installed on 2 different servers, port conflict on port 5989 will not arise. Follow the regular installation procedures for both HP SIM and HP CVEVA as mentioned in the installation guide.

## Summary

The benefits of a unified server and storage infrastructure are very compelling. HP System Insight Manager together with HP StorageWorks Command View EVA provides a solid foundation for a unified server-storage management strategy.

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