

HP Systems Insight Manager 7.0 and HP Agentless Management overview

Technology brief

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Introduction

Until now, HP Systems Insight Manager (HP SIM) could only manage host systems using traditional management solutions that require SNMP Agents or WBEM (WMI) Providers. Now, HP SIM 7.0 lets you take advantage of the new HP Agentless Management features that are part of ProLiant Gen8 servers. The HP iLO Management Engine in HP ProLiant Gen8 servers incorporates HP Agentless Management, making the management of core hardware monitoring and alerting possible without SNMP Agents or WBEM (WMI) Providers installed on the host OS. Although HP Agentless Management is a great solution for the majority of ProLiant environments, certain usage scenarios may still require either SNMP Agents or WBEM (WMI) Providers.

This document gives IT professionals who are familiar with HP SIM an overview of HP Agentless Management and how it works with HP SIM 7.0. It also includes information about when you may need to continue to use the SNMP Agents or WBEM (WMI) Providers for your management solution.

For details about the iLO Management Engine, refer to the technology brief “HP iLO Management Engine technologies.” It is available at

<http://h20000.www2.hp.com/bc/docs/support/SupportManual/c03207602/c03207602.pdf>.

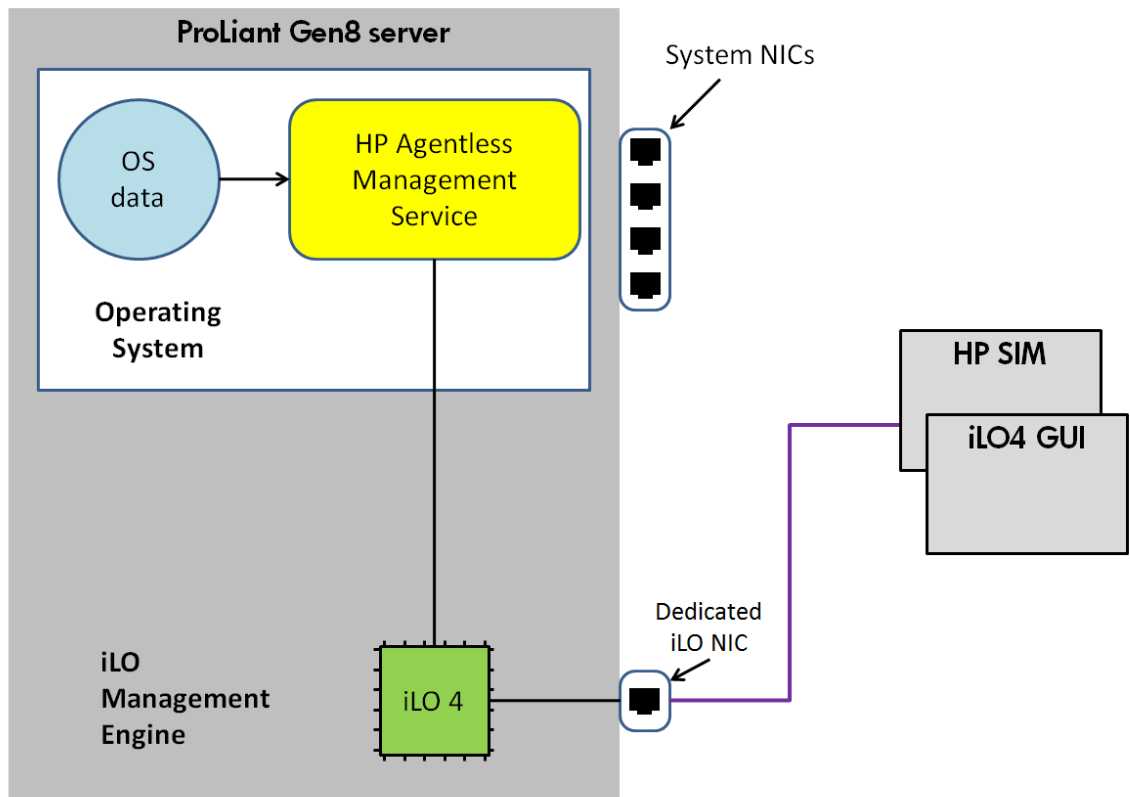
Overview of HP Agentless Management

ProLiant Gen8 servers include the iLO Management Engine, which provides HP Agentless Management. HP Agentless Management runs independently from the OS and collects data on core server components. You can view the data that the iLO Management Engine collects through either the web-based iLO 4 Graphical User Interface (GUI), the iLO XML scripting interface or through a remote management application, like HP SIM 7.0.

To provide the complete HP Agentless Management solution, you can add the optional HP Agentless Management Service. The HP Agentless Management Service runs on the OS and gathers information that the iLO Management Engine does not obtain when an OS is running. The HP Agentless Management Service is a lightweight service that only communicates with the iLO Management Engine. It does not require an SNMP stack to be running on the host OS and it does not have an external interface.

The HP Agentless Management Service provides the information it gathers to the iLO Management Engine. You can view the data that the HP Agentless Management Service and the iLO Management Engine collect through the iLO 4 GUI or HP SIM 7.0, as depicted in Figure 1.

Figure 1: A complete HP Agentless Management solution is illustrated.



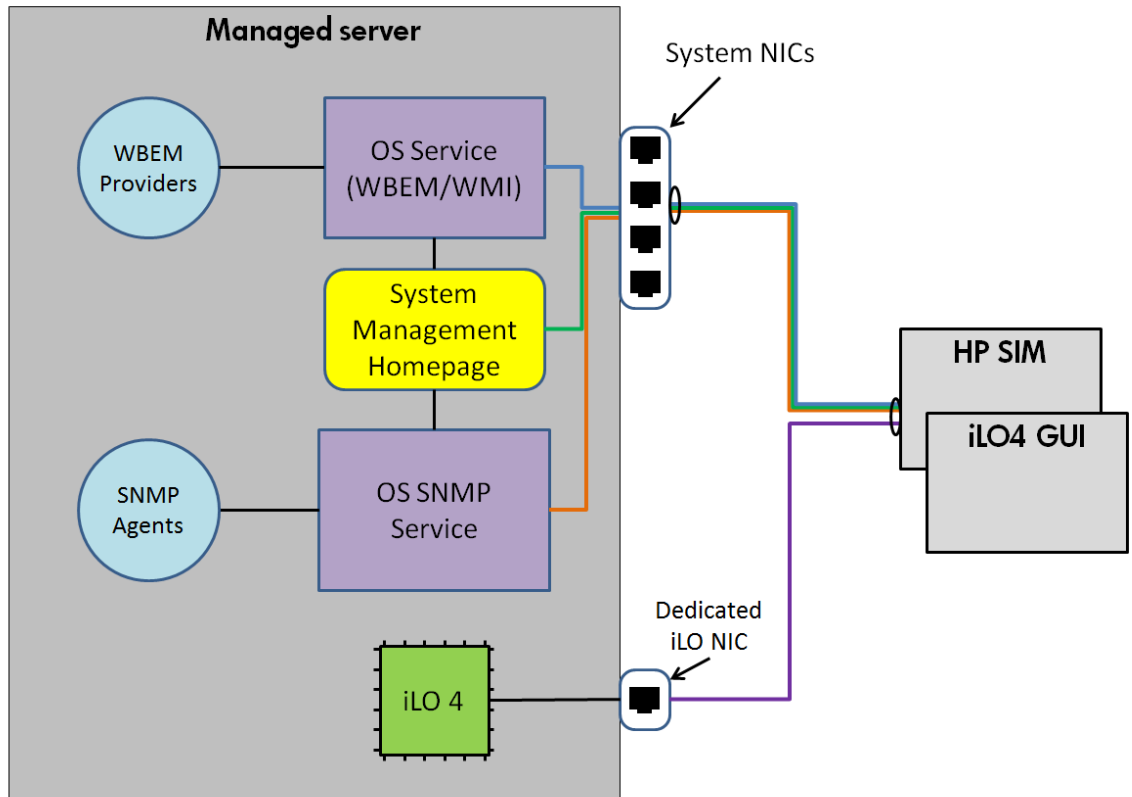
The HP Agentless Management solution brings several benefits, including:

- **Easy setup**—After using either the iLO 4 GUI or the HP Scripting Toolkit to configure the SNMP communication parameters and trap destination, you can start monitoring core hardware. On ProLiant Gen 8 servers, you can install the HP Agentless Management Service using: HP Intelligent Provisioning, Service Pack for ProLiant, or the VMware offline bundles and custom image. The HP Agentless Management Service runs under the OS and uses the established HP iLO Device Driver interface to feed the OS-specific data to iLO. This data includes but is not limited to:
 - Host OS name and version
 - Host network port IP addresses
 - Installed HP software and version numbers
- **Improved performance, security, and stability**—The iLO Management Engine performs hardware management independently from the host processor and OS. This environment increases security and stability by moving the management software and possible vulnerabilities away from the host OS to the iLO Management Engine. It provides configuration, monitoring, and alerting data through the iLO NIC. This serves to partition the management network from the application data network without sacrificing a system network port. You do not need any additional network-based management protocols on the OS. This leaves the OS free from potential security vulnerabilities.

Using traditional OS-based management software

Traditionally, OS-based management required software to run on the OS. The software plugs into the appropriate service providing SNMP, WMI, or WBEM capabilities in the OS. The software collects server-specific, OS-specific, and industry-standard data. The service bundles the data and makes it available to either the System Management Homepage or a remote management application, such as HP SIM. Figure 2 provides an overview of the traditional OS-based management model.

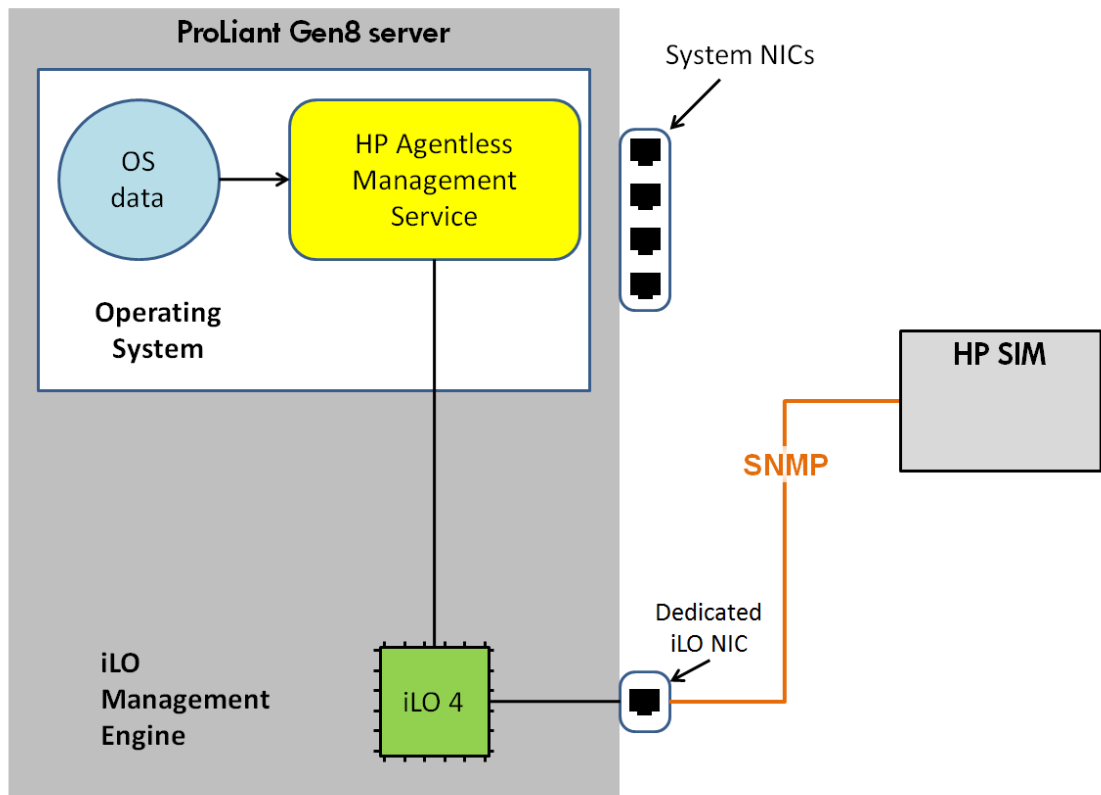
Figure 2: Traditionally, SNMP Agents and WMI/WBEM Providers communicate with HP SIM through an OS-based service.



Using HP Agentless Management

ProLiant Gen8 servers are capable of running HP Agentless Management through the iLO Management Engine. With HP Agentless Management, SNMP runs on the iLO Management Engine, not on the host OS (see Figure 3).

Figure 3: The iLO Management Engine includes the core instrumentation logic to monitor hardware and the embedded HP Agentless Management with its SNMP stack.



Because the iLO Management Engine runs independently from the server processor and OS, you can start monitoring your ProLiant Gen8 server's core hardware components before installing the OS or any OS-based software (a bare metal server). To monitor a bare metal ProLiant Gen8 server, you need only to power on the server and configure the SNMP parameters.

The iLO Management Engine collects data about core hardware components and makes the data available through multiple external interfaces including:

- Intelligent Platform Management Interface (IPMI)
- HP Remote Insight Board Command Language (RIBCL)
- SNMP

Since the iLO Management Engine handles the management, HP SIM can discover the IP address of the iLO Management Engine and its associated host server without requiring OS-based software (see Figure 4).

When using HP Agentless Management without installing the HP Agentless Management Service or any other OS-based software, HP SIM communicates with iLO to get the data and alerts for the following core hardware subsystems:

- Processor
- Memory
- Storage
- Power
- Thermal conditions

Figure 4: HP SIM 7.0 can discover a bare-metal server.

HS Summary: 0 Critical 0 Major 0 Minor 1 Normal 1 Disabled 0 Unknown Total: 2									
HS	SW	VM	PF	CW	ES	System Name	System Type	Product Name	OS Name
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ILO2M203200T8 in Server 2M203200T8	Management Processor	Integrated Lights-Out ...	Embedded
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2M203200T8	Server	ProLiant DL385 G7	

HP SIM discovers the iLO and associates it with the bare-metal (undeployed) host

After HP SIM 7.0 discovers a bare metal ProLiant Gen8 server, we recommended using one of the following three methods to configure HP Agentless Management:

- Use HP Intelligent Provisioning, Service Pack for ProLiant, or the VMware offline bundles and custom image to configure the ProLiant server with the HP Agentless Management Service.
- Use the HP Scripting tool kit [typically through a Preboot eXecution Environment (PXE) or HP ProLiant iLO Embedded Virtual Media environment] to configure the iLO user accounts, apply an optional iLO license, and configure the SNMP parameters.
- Use the iLO 4 GUI or XML scripting interface to configure an individual iLO's parameters.

Configuration options

Through the iLO 4 GUI, you can enable either HP Agentless Management or SNMP Pass-thru. When HP SIM 7.0 discovers a ProLiant Gen8 server, it looks to see whether HP Agentless Management or SNMP Pass-thru is enabled. This setting determines where HP SIM gets management data.

Using the information in the following sections, you can choose what configuration is best for your environment:

- HP Agentless Management: the recommended configuration
- SNMP Pass-thru: for management environments requiring SNMP Agents(not available when Agentless Management is in use)
- HP Agentless Management and SNMP Agents or WBEM Providers: not a recommended configuration

Configuring HP SIM 7.0 for HP Agentless Management

If you configure HP Agentless Management through the iLO 4 GUI, HP SIM receives alerts from the iLO Management Engine. Because of the advantages that HP Agentless Management offers, this is the preferred configuration. It eliminates any potential for duplicate information from the managed server.

To manage a ProLiant Gen8 server that is using HP Agentless Management, your management server must use HP SIM 7.0. You also need to configure SNMP parameters so that HP SIM 7.0 can send and receive information to the server.

Management server requirements

To manage a ProLiant Gen8 server using HP Agentless Management, the iLO should be on the same networks as the management server.

To use the management server for making configuration changes on the ProLiant Gen8 server, the management server must have either trust or administrative credentials to the ProLiant Gen8 server's iLO Management Engine.

Optionally, we recommend that you implement consistent network naming configurations through a shared Domain Name System (DNS).

Another good practice is to designate a Single Sign On (SSO) trust by certificate between the management server and the ProLiant Gen8 server. By designating a SSO trust by certificate, can use "Follow the Red" indicators. Follow-the-red refers to following a top-level status value down through various levels to find problem hardware.

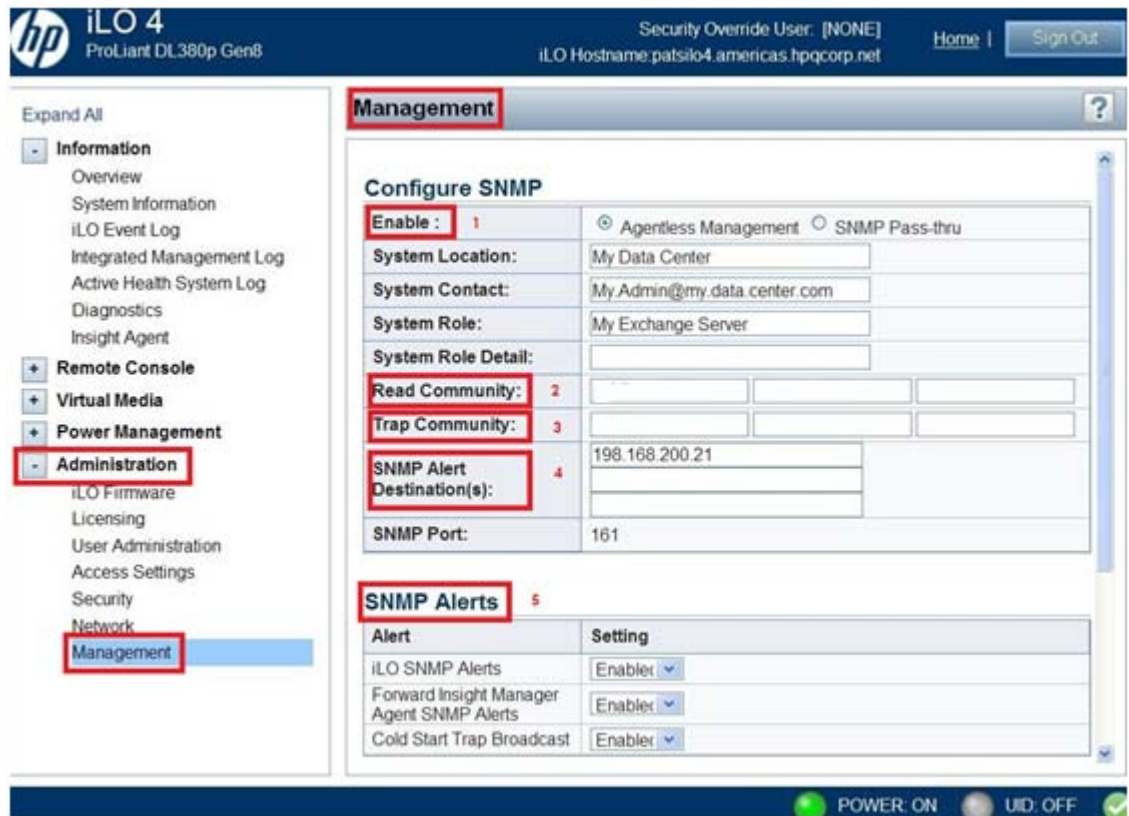
Configuring HP Agentless Management manually

For HP SIM 7.0 to manage a ProLiant Gen8 server using HP Agentless Management, you need to configure certain SNMP parameters on the server. To configure SNMP, select **Management** from the iLO 4 GUI Administration browser menu. Figure 5 shows the **Management** screen and the SNMP parameters that you need to configure.

To configure SNMP on the ProLiant Gen8 server, complete the following steps:

1. Enable Agentless Management.
2. Enter a common Read Community string for HP SIM 7.0 and the ProLiant Gen8 server.
3. Optionally, enter a common Trap Community string for HP SIM 7.0 and the ProLiant Gen8 server.
4. Enter the IP address or DNS name for the HP SIM 7.0 IP address in the SNMP Alert Destinations(s) field.
5. Enable all of the SNMP Alerts: iLO SNMP Alerts, Forward Insight Manager SNMP Alerts (if the SNMP agent is installed in the OS), and Cold Start Trap Broadcast.

Figure 5: Configure SNMP parameters for HP SIM 7.0 to manage a ProLiant Gen8 server using HP Agentless Management.



Information provided by Agentless Management and Insight Management Agents

HP Agentless Management and the HP Agentless Management Service provide data for hardware and basic OS monitoring. Some environments have complex management and alerting requirements. These situations will still require the use of the SNMP Agents or WBEM Providers. For a comparison of the information provided by Agentless Management and the Insight Management Agents, see Table 1.

Table 1: Information provided by Agentless Management and Insight Management Agents.

Component	Insight Management Agents	HP Agentless Management without HP Agentless Management Service	HP Agentless Management with HP Agentless Management Service
Server health	<ul style="list-style-type: none"> Fans Temperatures Power supplies Memory CPU 	<ul style="list-style-type: none"> Fans Temperatures Power supplies Memory CPU 	<ul style="list-style-type: none"> Fans Temperatures Power supplies Memory CPU

Component	Insight Management Agents	HP Agentless Management without HP Agentless Management Service	HP Agentless Management with HP Agentless Management Service
Storage	<ul style="list-style-type: none"> • Smart Array • HBA • Fibre Channel and iSCSI • SMART Drive Monitoring • Tape • External storage 	<ul style="list-style-type: none"> • Smart Array • SMART Drive Monitoring • Internal hard drives attached to Smart Array 	<ul style="list-style-type: none"> • Smart Array • HBA • SMART Drive Monitoring • Internal hard drives attached to Smart Array
NIC	<ul style="list-style-type: none"> • Standup and embedded • MAC and IP address • Link Up/Down • Teaming information • VLAN information 	<ul style="list-style-type: none"> • MAC addresses for embedded NICs 	<ul style="list-style-type: none"> • Standup and embedded • MAC and IP address • Link Up/Down
Other	<ul style="list-style-type: none"> • Operating system information (Host MIB) • iLO data • Performance data • Configurable thresholds • Logging events to operating system logs • Clustering information 	<ul style="list-style-type: none"> • iLO data • Firmware inventory 	<ul style="list-style-type: none"> • Operating system information (Host MIB) • iLO data • Firmware inventory • Driver/Service inventory

Using a combination of HP Agentless Management, SNMP Agents, and WBEM providers

The HP Agentless Management Service can run concurrently with our OS-based management software. Although possible, we recommend running only one: either the HP Agentless Management Service or our OS-based management software. Running both concurrently consumes more memory and processor cycles. Additionally, using both HP Agentless Management, status agreement, and the SNMP Agents may result in different alerts or duplicate alerts in HP SIM.

If HP SIM has identified that HP Agentless Management is in use, HP SIM goes to the iLO Management Engine first to gather data. If both the iLO Management Engine and Agents and Providers are monitoring a particular component, HP SIM may receive duplicate data, a subset of data, or a superset of data for that component.

To eliminate duplicate monitoring, perform either of the following procedures:

- Stop or uninstall the HP Agentless Management Service. Stopping the HP Agentless Management Service stops the service until you reboot the server. Upon reboot, it is re-enabled.
- Uninstall the Agents or Providers by using the install or remove software tool available in your OS.

Installing the HP Agentless Management Service

The HP Management Service expands monitoring from core hardware components to include applications and the OS. You have three options for installing the HP Agentless Management Service:

- HP Intelligent Provisioning
- HP SIM Configure and Repair Agents options
- HP SIM Managed System Setup Wizard

For details on how to use HP Intelligent Provisioning or HP SIM 7.0, see the product user guide.

HP Intelligent Provisioning

Using HP Intelligent Provisioning, you can install the HP Agentless Management Service, SNMP Agents, and HP WBEM Providers. To illustrate, Figure 8 shows these options for a Windows use case.

Figure 8: HP Intelligent Provisioning lets you install the HP Agentless Management Service, SNMP Agents, and WBEM Providers (Windows use case illustrated).

The screenshot shows the HP Intelligent Provisioning configuration interface. The 'Partition Size' is set to 139971 MB. The 'Install' options section, highlighted with a red box, includes:

Install AMS	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Install SNMP	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Install HP WBEM Providers and Configure Firewall	<input type="radio"/> Yes	<input checked="" type="radio"/> No

HP SIM 7.0 Configure and Repair Agents options

Through the **Configure or Repair Agents** options, you can remotely install the HP Agentless Management Service from the HP SIM server (see Figure 9). To do so, choose to the **Install the HP Agentless Management Service or the Linux PSP or ESX Agents** option. You cannot install both.

Figure 9: You can choose to install the Agentless Management Service from the **Configure or Repair Agents** screen.

Configure or Repair Agents
Target: abrmes:xdp01
Go back to abrmes:xdp01 (ProLiant DL360 G5)

Step 2: Install Providers and Agents (Optional)

If agents or providers are already installed, skip this step and proceed to the configuration step.

By installing agents or providers on the managed systems, HP SIM will be able to collect inventory and status information from WMI providers or SNMP agents, but not necessarily both.
Following options applies only to ProLiant or Itanium-based Systems with Windows or Linux Operating systems.

- Install Agentless Management Service (AMS) on HP ProLiant Gen8 servers running Windows, Linux, or firmware.**
- Install Linux PSP or ESX Agents** Linux PSP and ESX Agents are a collection of SNMP agents that can be used
- Install WBEM / WMI Provider (HP Insight Management WBEM Provider) for Windows** [Learn More..](#)
- Install SNMP Agent (HP Insight Management Agents) for Windows** [Learn More..](#)
- Install OpenSSH for Windows** SSH is used for running tools remotely on managed systems. [Learn More..](#)
- Install the Version Control Agent (VCA) for Windows** The VCA, in conjunction with the HP ProLiant Version

HP SIM 7.0 Managed System Setup Wizard

Through the **Managed System Setup Wizard** options, you can remotely install the HP Agentless Management Service from the HP SIM server (see Figure 10). To do so, select **Agentless Management Service**.

Figure 10: You can choose to install the Agentless Management Service from the **Managed System Setup Wizard** screen (Windows use case illustrated).

The screenshot shows the 'Managed System Setup Wizard' interface. The main heading is 'Managed System Setup Wizard' with a subtitle 'Configure management features for selected systems by installing agents, applying licenses, and performing configuration steps.' The left sidebar contains a navigation menu with the following items: Introduction (checked), Select Features (selected), Choose Options, Analyze Systems, Select Licenses, Task Credentials, Summary, and Results. The main content area is titled 'Select Features' and includes the instruction 'Choose the management features to configure for your systems.' Below this, there is a dropdown menu for 'Select management features:' set to 'For all selected systems'. An 'Undo' button is visible above a table of features. The table has columns for 'Feature Name' and 'Details'. The 'Agentless Management Service' feature is checked and highlighted with a red box. Other features include HP Systems Insight Manager, Monitoring, Inventory, Remote Command Execution, Events, Version Control, Single Sign On, Embedded Remote Support, and HP Insight Control.

	Feature Name	Details
<input checked="" type="checkbox"/>	HP Systems Insight Manager	
<input type="checkbox"/>	Monitoring	(i)
n/a	Inventory	(i)
n/a	Remote Command Execution	(i)
<input checked="" type="checkbox"/>	Events	(i)
<input checked="" type="checkbox"/>	16.84.195.21	
n/a	Version Control	(i)
n/a	Single Sign On	(i)
<input checked="" type="checkbox"/>	Embedded Remote Support	(i)
<input checked="" type="checkbox"/>	16.84.195.21	
<input checked="" type="checkbox"/>	Agentless Management Service	(i)
<input checked="" type="checkbox"/>	16.84.195.21	
<input type="checkbox"/>	HP Insight Control	

Starting and stopping the HP Agentless Management Service

You can stop, start, or check the status of the HP Agentless Management Service through applets or commands on your server.

Windows environments

To start or stop the HP Agentless Management Service, use the Windows Services applet (see Figure 11).

Figure 11: You can start or stop the HP Agentless Management Service in the Windows Services applet.



Linux environments

To start or stop the HP Agentless Management Service, use either of these Linux daemon commands:

- `/etc/init.d/hp-ams [start | stop | restart | status]` (see Figure 12).
- `service hp-ams [start | stop | restart | status]` (see Figure 13).

Figure 12: You can stop the HP Agentless Management Service using Linux daemon command `/etc/init.d/hp-ams [start | stop | restart | status]`.

```
;root@ -rhel6:~/root@ -rhel6 /]# /etc/init.d/hp-ams -help
Usage: /etc/init.d/hp-ams {start|stop|restart|status}
;root@ -rhel6:~/root@ -rhel6 /]# /etc/init.d/hp-ams restart
```

Figure 13: You can stop the HP Agentless Management Service using Linux daemon command `service hp-ams [start | stop | restart | status]`.

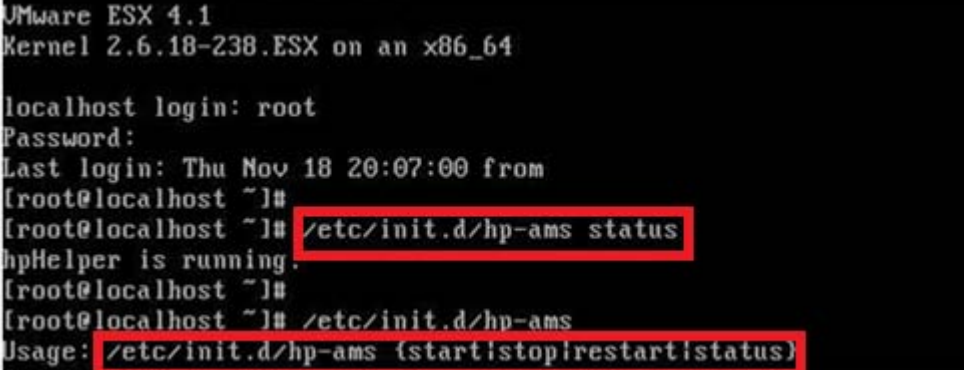
```
;root@ -rhel6:~/root@ -rhel6 /]# service hp-ams status
hpHelper is running...
```

VMware environments

To start or stop Agentless Management Service, use the command appropriate for your environment:

- VMware ESX 4.1U2 Classic:
 - `/etc/init.d/hp-ams [start | stop | restart | status]`
- VMware ESXi 4.1U2:
 - `/usr/sbin/hp-ams.sh [start | stop | restart | status]`
- VMware ESXi 5.x:
 - `/etc/init.d/hp-ams.sh [start | stop | restart | status]` (see Figure 14)

Figure 14: You can stop the HP Agentless Management Service using the `/etc/init.d/hp-ams.sh [start | stop | restart | status]` command in VMware.



```
VMware ESX 4.1
Kernel 2.6.18-238.ESX on an x86_64

localhost login: root
Password:
Last login: Thu Nov 18 20:07:00 from
[root@localhost ~]# /etc/init.d/hp-ams status
hpHelper is running.
[root@localhost ~]# /etc/init.d/hp-ams
Usage: /etc/init.d/hp-ams {start|stop|restart|status}
```

Conclusion

Together, HP Agentless Management and HP SIM 7.0 provide a management solution with many benefits. These benefits include performance, ease of setup, and stability. Some environments and configurations will continue to need the SNMP Agents or WBEM (WMI) Providers. When you understand your requirements and the benefits and limitations of your management options, you can configure a complete management solution to meet your needs.

For more information

Visit the URLs listed below if you need additional information.

Resource description	Web address
"HP iLO Management Engine technologies" technology brief	http://h20000.www2.hp.com/bc/docs/support/SupportManual/c03207602/c03207602.pdf
iLO user documentation	www.hp.com/go/ilo/docs
HP SIM documentation	http://h18013.www1.hp.com/products/servers/management/hpsim/infolibrary.html

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