

HP Server Automation

for the HP-UX, IBM AIX, Red Hat Enterprise Linux, Solaris, SUSE Linux Enterprise Server, VMware, and Windows® operating systems

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Technical Note: SA Cores on VMWare Hypervisors and Guest Operating Systems

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Technical Note: SA Cores on VMWare Hypervisors and Guest Operating Systems

As of SA 7.80, SA Cores are certified for VMWare VMs running Red Hat Linux 4AS (update 6 or later) and Red Hat 5 (updates 2 and 3 or later) as the guest operating system. The following sections describe the requirements for installing an SA Core on a VMWare VM and provide instructions for doing so.

Supported Hypervisor and Guest Operating Systems

Table 1 lists the supported Hypervisor and Guest VM operating systems for SA Core Components.

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Table 1 Supported Hypervisor and Guest Operating Systems

Hypervisor	OS Version for VM	Architecture	SA Components
ESX 3.02 ESX 3.03	Red Hat EL 4 AS (update 6 or later) Red Hat 5 (updates 2 and 3 or later)	x86_64	All components except the Model Repository
ESX 3.5 Update 1 - latest update	Red Hat EL 4 AS (update 6 or later) Red Hat 5 (updates 2 and 3 or later)	x86_64	All components except the Model Repository
ESXi 3.5 Update 2 - latest update	Red Hat EL 4 AS (update 6 or later) Red Hat 5 (updates 2 and 3 or later)	x86_64	All components except the Model Repository



Pending further investigation and validation, the Model Repository cannot be installed on a VM. It must be installed on a physical server.

For a list of supported Oracle versions for the Model Repository, see the *SA Planning and Installation Guide*, Appendix A: Oracle Setup for the Model Repository

VM CPU and Memory Requirements

Table 2 shows the minimum number of CPUs and required memory to run SA Cores on VMs:

Table 2 VM CPU and Memory Requirements

Number of VMs	Number of CPUs and RAM for each VM		Number of Managed Servers
	4 CPUs 16GB RAM	4 CPUs 16GB RAM	
1	Infrastructure Component bundle OS Provisioning bundle Slice Component bundle		960
2	Infrastructure Component bundle OS Provisioning bundle Slice 0 Component bundle	Slice 1 Component bundle	2250

➤ To receive support for any issues encountered while running SA components in VMWare VMs, it is a requirement that the only VMs running on the hypervisor (physical server) be VMs running SA components.

➤ It is essential to avoid over-commitment of physical resources (CPU and physical memory) to ensure proper functioning of the VMs. Over-committing these resources will lead to performance issues as well as lead to time synchronization issues.

SA Satellite Memory Requirements

Table 3 lists provides the minimum number of CPUs and required memory to run SA Satellites on VMs:

Table 3 CPU and Memory Requirements: Two Large Servers and Additional Smaller Servers

Number of VMs	Number of CPUs and RAM for each VM	Number of Managed Servers
	2 CPUs 2 GB RAM	
1	Satellite Components	1500

Hardware Performance Issues

The hardware requirements for Hypervisors running SA Core VMs can vary based on these factors:

- The availability of the physical CPUs and memory in the Hypervisor to support the recommended SA Core VM configuration.
- The number of VMs running concurrently on the physical server.
- The number of servers that the SA Core manages.
- The number and complexity of your concurrent operations.
- The number of concurrent users who can access the SA Command Center.
- The number of facilities in which the SA Core operates.

For more information about improving performance see:

http://www.vmware.com/pdf/VI3.5_Performance.pdf

VMWare Virtual Center

VMWare Virtual Center can be run on ESX systems that host SA Core VMs. However, for VMs running SA Core Components, not all Virtual Center features are supported. The following Virtual Center features have *not* been fully validated and are currently not supported:

- Snapshots
- Distributed Resource Scheduling (DRS)
- VMotion
- Storage VMotion
- Fault Tolerance

- High Availability (HA)

HP is continuing to validate these advanced Virtual Center features and will announce support as it becomes available.

SA Core Component VMs on SAN or NAS Devices

Running SA Core Components on VMs is supported if the VM images are run from a local disk or SAN. Running SA Core Components on VMs is *not* supported if the VM images are stored on NAS devices.

VMWare VM Timekeeping Issues

You should be familiar with the guidelines about different timekeeping solutions in the VMWare, Inc. document, *Timekeeping in VMware Virtual Machines (VMware® ESX 3.5 / ESXi 3.5, VMware Workstation 6.5)*. You should also avoid CPU pressure on VMs as described in that white paper.

VMWare Tools

VMware Tools can be installed in the VMs that run SA, but the VMWare Tools periodic time synchronization option must be disabled.

Conflicts due to Timekeeping Issues

If the time on the SA Cores in a VMWare VM-based Multimaster Mesh get out of synchronization due to the time skew described in the VMWare white paper described in [VMWare VM Timekeeping Issues](#), conflicts can occur in the Mesh.

If you find conflicts in your Mesh, you should

- Ensure that you have enabled/configured the Timekeeping solution described in the VMWare white paper described in the next section.
- Ensure that your VMWare Timekeeping implementation is correctly configured.

For more information about resolving conflicts, see "Model Repository Multimaster Component Conflicts" in the *SA Administration Guide*.

Avoiding Conflicts

You can customize your own timekeeping solution based on the VMWare, Inc. document, *Timekeeping best practices for Linux* which can be found at:

http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1006427

We attempt to supply valid URLs but, if this URL has been changed or is unavailable, you can search for the paper by title at <http://www.vmware.com>.

Alternatively, you can use the configuration shown below which has been tested and been shown to work in an HP SA Core/VMWare VM environment.

NTP Settings

1 Add the following entries to the `ntp.conf` file:

- a `tinker panic 0`

Instructs NTP not to give up if it sees a large jump in time. This entry must be at the top of the `ntp.conf` file.

- b `restrict 127.0.0.1`

Do not use the local clock as a time source.

- c `restrict default kod nomodify notrap`

- d `server <NTP_server>`
(for example, `ntp.dev.opsware.com`)
- e `driftfile /var/lib/ntp/drift`
- 2 Comment out the following lines:
`server 127.127.1.0`
`fudge 127.127.1.0 stratum 10`
- 3 Restart the NTP daemon:
- 4 Ensure that either VMWare Tools periodic time synchronization is disabled or VMWare VMTools is not installed (you will still need a method of ensuring the time on the VMs is synchronized).

Installing SA Cores Under VMWare VMs

SA Core pre-installation requirements, disk space requirements, installation, and post-installation requirements under VMWare VMs are the same as those for installation on a physical server. You can use the instructions described in the *SA Planning and Installation Guide* to install an SA Core on an existing VMWare VM.



The Model Repository must be installed on a physical server while the rest of the Core Components can be installed on the VM.
