

**Veritas Storage Foundation™ Basic - Technical FAQ
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General Questions

What is Veritas Storage Foundation Basic?

Storage Foundation Basic is a free version of the industry leading Storage Foundation designed for use on edge-tier, departmental, and test/development workloads. Storage Foundation Basic combines the industry-leading Veritas File System and Veritas Volume Manager to provide heterogeneous online storage management.

What are edge-tier workloads?

Edge-tier workloads include web, application, and other infrastructure servers, as well as departmental and test/development servers. These are typically run on smaller servers in scale-out architectures.

How much does Storage Foundation Basic cost?

A free license is downloadable at <http://www.symantec.com/sfbasic> or via your sales representative, including free self-service support. For production workloads, a range of annual support subscriptions are available, starting at under \$100 per processor. For details on how to purchase, please visit <http://www.symantec.com/sfbasic>.

How is this different than Storage Foundation Standard or Enterprise?

Storage Foundation Basic is designed for edge tier workloads, and has system configuration guidelines. Storage Foundation Standard and Enterprise are typically used for business and mission critical applications, and databases. Additional advanced functionality include: local and remote replication, dynamic storage tiering capabilities, database integration, etc.

What are the technical support options?

Users can choose the level of support that fits their needs:

- Free, online support is available at http://support.veritas.com/menu_ddProduct_8010.htm
- Gold/Basic support during regional business hours is available for \$98/processor (socket)/ year
- Platinum/Extended 24x7 support is available for \$125/processor (socket)/year

Are there deployment limitations to Storage Foundation Basic?

Deployment is limited by your end-user license agreement (EULA) to 2-way servers with up to four Veritas File System (VxFS) data file systems and four Veritas Volume Manager (VxVM) data volumes:

- Maximum four VxVM volumes per physical server (excluding system volumes required for booting root disks)
- Maximum four mounted VxFS file systems per physical server (excluding root file systems)
- Maximum physical server capacity of two CPU sockets

The limits defined by Storage Foundation Basic only apply to VxVM volumes and VxFS file systems.

What happens to my data when I exceed the limit of Storage Foundation Basic?

Nothing happens to the data stored in a file system or a volume. The non-compliance warning message is displayed and you are now exceeding the usage limits set for Storage Foundation Basic. If you are under a support contract and call support while exceeding the usage limits, then support has the right to refuse to help until you are using the product according to the EULA. Furthermore, you will be subject to appropriate audits and legal recourse for such non-compliance.

What error message can I expect when I am exceeding the limits for Storage Foundation Basic?

The following error message can be expected when exceeding the limit for Volume Manager. A very similar error message is displayed when exceeding the limit for mounted file systems:

```
WARNING V-5-1-12761 You have exceeded the authorized usage for this product and are out of compliance with your License Agreement. Please email sales_mail@symantec.com or contact your Symantec sales representative for information on how to obtain additional licenses for this product.
```

```
WARNING: V-3-20000: You have exceeded the authorized usage (maximum 4 unique mounted user-data file systems) for this product and are out of compliance with your License Agreement. Please email sales_mail@symantec.com or contact your Symantec sales representative for information on how to obtain additional licenses for this product.
```

How are the limits defined?

The volume limit is four VxVM data volumes. The root disk and its associated volumes (only applicable if the root disk is encapsulated with Veritas Volume manager) are not included in the volume limit.

The File System limit is four mounted data file systems (VxFS file systems only).

The CPU limit is determined by physical processor sockets. Servers with up to 2 physical CPU sockets per server are allowed (independent of the number of cores on each socket).

The limitations of Storage Foundation Basic are per physical server (and are not defined by virtual servers).

How do I upgrade from Storage Foundation Basic to Storage Foundation Enterprise?

You can upgrade to Storage Foundation Standard or Enterprise without having to reinstall the software or reboot the server (please refer to installation guide for more detail). For example, after purchasing Storage Foundation Enterprise, input the license key and execute one command to re-read the license key information:

```
# vxlicinst -k <license key>
```

```
# vxdctl license init
```

Where can I find technical documentation?

For additional information, please refer to Knowledgebase at http://support.veritas.com/menu_ddProduct_8010.htm

Is there an online forum for Storage Foundation Basic?

The online forum can be found here: <http://news.support.veritas.com/dnewsweb.exe>

Is Dynamic Multi-pathing included in Storage Foundation Basic?

Storage Foundation Basic has the same feature set as Storage Foundation Standard. This includes features like journaling file system, disk virtualization, striping and mirroring and Dynamic multi-pathing. For a complete listing of features, see the SF Basic data sheet at: http://eval.veritas.com/mktginfo/enterprise/fact_sheets/ent_sf_basic_4.1_04-2006.en-us.pdf

Is there HP-UX support for Storage Foundation Basic?

HP-UX support with Storage Foundation Basic is planned for a future release.

Solaris Questions

Which Solaris versions and architectures are supported?

Storage Foundation Basic 4.1 supports Solaris 10 for the x64 platform.

Storage Foundation Basic 5.0 supports Solaris 8, 9 and 10 for the SPARC platform.

	Solaris x64	Solaris SPARC
Storage Foundation Basic 4.1	Yes	N/A
Storage Foundation Basic 5.0	N/A	Yes

Is Storage Foundation Basic 5.0 available for Solaris x64?

No. Solaris x64 is not supported with Storage Foundation 5.0. For Solaris x64 support, use Storage Foundation Basic 4.1.

Which storage arrays are supported with Storage Foundation Basic for Solaris SPARC and x64?

Storage Foundation Basic supports the entire range of storage that is supported on Storage Foundation Enterprise. The standard Hardware Compatibility List applies to Storage Foundation Basic. The columns that are applicable are VxVM and DMP. Please make sure you read the Notes column in case you need to download an array support library.

<http://support.veritas.com/docs/279538> - Hardware Compatibility List (HCL) for Storage Foundation 4.1 MP1 Solaris x64

<http://support.veritas.com/docs/283161> - Hardware Compatibility List (HCL) for Storage Foundation 5.0

Linux Questions

Which Linux versions are supported?

Storage Foundation Basic supports the two market leading Linux distributions for enterprise environments, Red Hat Enterprise Linux (RHEL) 4 and SUSE Linux Enterprise Server (SLES) 9.

SUSE Linux Enterprise Server (SLES) 10 is not yet supported. Support for SLES 10 will be introduced in the fall.

For kernel and security updates, please see question below regarding kernel updates.

Which kernel versions are supported?

Storage Foundation Basic 4.1 and 5.0 supports different architectures, ensure that you are installing the correct version for the architecture of the server.

The following table summaries on a high level what OS is supported on the different CPU architectures. See below the table for the details.

	X86 (32-bit)	X86_64 (EM64T/Opteron)	IA64 (Itanium)
Storage Foundation Basic 4.1	RHEL 4, SLES 9	RHEL 4, SLES 9	RHEL 4, SLES 9
Storage Foundation Basic 5.0	N/A	RHEL 4, SLES 9	N/A

Storage Foundation Basic 4.1:

x86 (i686/i586):

RHEL 4 update 1, 2, 3: up, smp and hugemem

SLES 9 SP1, SP2, SP3: default, smp, bigsmp

EM64T/Opteron (x86_64):

RHEL 4 update 1, 2, 3: up, smp (Note: largesmp is NOT supported)

SLES 9 SP1, SP2, SP3: default, smp

Itanium (IA64):

RHEL 4 update 1, 2, 3: smp (Note: largesmp is NOT supported)

SLES 9 SP1, SP2, SP3: default

Storage Foundation Basic 5.0:

Storage Foundation Basic 5.0 only supports 64-bit kernels. For 32-bit kernel support, use version 4.1.

EM64T/Opteron (x86_64, 64-bit kernel only):

RHEL 4 update 3: up, smp (Note: largesmp is NOT supported)

SLES 9 SP3: default, smp

Which servers are supported?

All servers (of the supported architectures) supported by Red Hat/SUSE are supported as long as the server fulfills the minimum requirement for Storage Foundation Basic:

Minimum server requirements:

1 CPU
1 GB memory

Is Storage Foundation supported on 64-bit kernels?

Yes, Storage Foundation Basic is fully supported in 64-bit kernels.

Is Red Hat Fedora supported?

No, only server versions of Red Hat Enterprise Linux 4 (RHEL 4) are supported.

In Gentoo Linux supported?

No, only RHEL 4 and SUSE SLES 9 are supported.

Is Asianux or Red Flag Linux supported?

At this point there is no Symantec support for Asianux or Red Flag Linux.

Is the 2.6 kernel supported?

Red Hat Enterprise Linux and SUSE SLES are both based on the 2.6.x kernel. We only support these two commercial distributions (for version and kernel support, see question 19). There are no plans to provide generic 2.6.x kernel support.

Is SELinux supported?

No, SELinux is not supported for any product in the Storage Foundation family or the Cluster family. It is on the roadmap for future technologies to support.

Here is an example error message if SELinux is enabled and the policy is set to enforce:

```
kernel: SELinux: initialized (dev VxVM3, type vxfs), not configured for labeling
kernel: audit(1145391971.602:3): avc: denied { mount } for pid=16275 comm="mount.vxfs" name="/" dev=VxVM3 ino=2
scontext=root:system_r:initrc_t tcontext=system_u:object_r:unlabeled_t tclass=filesystem
```

Which storage arrays are supported with Storage Foundation Basic?

Storage Foundation Basic supports the entire range of storage that is supported on Storage Foundation Enterprise. The standard Hardware Compatibility List applies to Storage Foundation Basic. The columns that are applicable are VxVM and DMP.

Please make sure you read the Notes column in case you need to download an array support library.

<http://support.veritas.com/docs/277905> - Hardware Compatibility List (HCL) for Storage Foundation 4.1 for RHEL 4 and SUSE SLES 9

<http://support.veritas.com/docs/283161> - Hardware Compatibility List (HCL) for Storage Foundation 5.0

Do I need to apply Storage Foundation 4.1 MP2 patches?

No, Storage Foundation Basic is based on the 4.1 MP2 release and therefore already contains all of the patches included in the 4.1 MP2 maintenance pack.

Are the ES and WS versions supported in Red Hat?

Yes, we fully support Red Hat Enterprise Linux 4 AS, ES and WS. Our installation and startup script will detect the different versions and install the appropriate kernel drivers.

Is Red Hat Enterprise Linux 3 supported with Storage Foundation Basic?

No, there are no plans to introduce Storage Foundation Basic on the Red Hat Enterprise Linux 3 platform. We fully support Red Hat Enterprise Linux 3 with the Storage Foundation 4.0 product line.

If I update the kernel, will I need a new version of Storage Foundation Basic?

On Red Hat, kernel updates are automatically supported. For example, an update from RHEL 4 update 1 to RHEL 4 update 3 does not require a patch from Symantec. For any future updates and if there are any exceptions to this policy then they would be documented and patches made available on this page:

<http://support.veritas.com/docs/277033>

On SUSE, the kernel upgrades can be more disruptive, installing security updates and minor kernel patches are usually OK and do not require a patch. However, ServicePack updates can introduce KABI changes and will require a patch from Symantec. This link is updated with the latest news:

<http://support.veritas.com/docs/277033>

Why am I getting a “kernel tainted” message after installing Storage Foundation Basic?

The Red Hat/SUSE kernel tainted message is harmless and has no effect on your system. The kernel tainted message is displayed as our kernel drivers are not open source. It does not affect the support of your operating system or any other product that is installed on the system.

AIX Questions

What versions of AIX are supported?

AIX version 5.2 and 5.3 are supported with Storage Foundation Basic 5.0

Which storage arrays are supported with Storage Foundation Basic?

Storage Foundation Basic supports the entire range of storage that is supported on Storage Foundation Enterprise. The standard Hardware Compatibility List applies to Storage Foundation Basic. The columns that are applicable are VxVM and DMP. Please make sure you read the Notes column in case you need to download an array support library.

<http://support.veritas.com/docs/283161> - Hardware Compatibility List (HCL) for Storage Foundation 5.0

Are partitions supported?

Yes, both LPAR's and micro partitions are supported. Keep in mind that Storage Foundation Basic is limited to 1 and 2 CPU servers. The License Agreement would be broken if a larger server is used even though the partition only has one or two CPU's configured.

Is the Virtual I/O Server supported?

Yes, LUN's on an external storage array can be accessed with the Virtual SCSI capability. That is, the LUN's can be accessed through shared HBA's (controlled by a Virtual I/O Server). In this configuration only one path is currently supported. DMP support for multiple (virtual) paths will be supported in a future update.