



FAQ: VMware Fault Tolerance (1013428)

Symptoms

Purpose

This article provides information on Frequently Asked Questions that can help to resolve Fault Tolerance related issues.

Resolution

1. What is VMware Fault Tolerance?

VMware Fault Tolerance is a feature that allows a new level of guest redundancy. For more information regarding this feature, see the vSphere Availability Guide (<https://www.vmware.com/support/pubs/>) for your version of ESXi/ESX.

2. How do I turn it on?

The feature is enabled on a per virtual machine basis. For more information on enabling Fault Tolerance, see the *Turning on Fault Tolerance for Virtual Machines* section in the vSphere Availability Guide (<https://www.vmware.com/support/pubs/>) for your version of ESXi/ESX.

3. What happens when I turn on Fault Tolerance?

In general terms, a second virtual machine is created to work in tandem with the virtual machine on which you have enabled Fault Tolerance. This virtual machine resides on a different host in the cluster and runs in virtual lockstep with the primary virtual machine. When a failure is detected, the second virtual machine takes the place of the first one with the least possible interruption of service. For more information, see *Protecting Mission-Critical Workloads with VMware Fault Tolerance* (http://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/techpaper/ft_virtualization_wp.pdf) whitepaper.

4. Why I cannot turn on Fault Tolerance?

VMware Fault Tolerance can be enabled on any virtual machine that resides in a cluster that meets the necessary requirements. If you have difficulty enabling Fault Tolerance for a specific virtual machine, see

The Turn on Fault Tolerance option is disabled (1010631) ([/s/article/1010631?](/s/article/1010631?r=2&other.KM_Utility.getAllTranslatedLanguages=1&other.KM_Utility.getArticleDetails=1&other.KM_Utility.getArticleMetadata=1&ui-comm-runtime-components-aura-components-siteforce-qb.Quarterback.validateRoute=1&ui-force-components-controllers-hostConfig.HostConfig.getConfigData=1)

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5. How do I turn Fault Tolerance off?

For instructions on disabling Fault Tolerance, see

Disabling or Turning Off VMware FT (1008026) (/s/article/1008026?

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6. How do I tell if my environment is ready for Fault Tolerance?

The VMware SiteSurvey Tool is used to check your environment for compliance with VMware Fault Tolerance. It can be downloaded from the VMware Shared Utilities (http://www.vmware.com/download/shared_utilities.html).

Note: SiteSurvey is no longer supported as of vSphere 5.1.

7. What happens during a failure?

When a host running the Primary virtual machine fails, a transparent failover occurs to the corresponding Secondary virtual machine. During this failover, there is no data loss or noticeable service interruption. In addition, VMware HA automatically restores redundancy by restarting a new Secondary virtual machine on another host. Similarly, if the host running the Secondary virtual machine fails, VMware HA starts a new Secondary virtual machine on a different host. In either case there is no noticeable outage.

8. What is the logging time delay between the Primary and Secondary Fault Tolerance virtual machines?

The actual delay is based on the network latency between the Primary and Secondary. vLockstep executes the same instructions on the Primary and Secondary. Because this happens on different hosts, there could be a small latency. However, there is no loss of state. This is typically less than 1 millisecond (ms). Fault Tolerance includes synchronization to ensure that the Primary and Secondary are synchronized.

9. In a cluster with more than 3 hosts, can you tell Fault Tolerance where to put the Fault Tolerance virtual machine or does it choose on its own?

You can place the original or Primary virtual machine. You have full control with DRS or vMotion to assign it to any node. The placement of the Secondary, when created, is automatic based on the available hosts. But, when the Secondary is created and placed, you can vMotion it to the preferred host.

10. What happens if the host containing the Primary virtual machine comes back online (after a node failure)?

This node is put back in the pool of available hosts. There is no attempt to start or migrate the Primary to that host.

11. Is the failover from the Primary virtual machine to the Secondary virtual machine dynamic or does Fault Tolerance restart a virtual machine?

The failover from the Primary to Secondary virtual machine is dynamic with the Secondary continuing execution from the exact point where the Primary left off. It happens automatically with no data loss, no downtime, and little delay. Clients see no interruption. After the dynamic failover to the Secondary virtual machine, it becomes the new Primary virtual machine. A new Secondary virtual machine is spawned automatically.

12. Where are Fault Tolerance failover events logged?

All failover events are logged by vCenter Server.

13. I encountered an error message that I can't find in the Knowledge Base. Where else should I check?

For the list of known errors in the *Fault Tolerance Error Messages*, see the vSphere Availability Guide (<https://www.vmware.com/support/pubs/>).

14. Does Fault Tolerance support Intel Hyper-Threading Technology?

Yes, Fault Tolerance does support Intel Hyper-Threading Technology on systems that have it enabled. Enabling or disabling Hyper-Threading has no impact on Fault Tolerance.

15. What happens if vCenter Server is offline when a failover event occurs?

When Fault Tolerance is configured for a virtual machine, vCenter Server need not be online for FT to work. Even if vCenter Server is offline, failover still occurs from the Primary to the Secondary virtual machine. Additionally, the spawning of a new Secondary virtual machine also occurs without vCenter Server.

16. How many virtual CPUs can I use on a Fault Tolerant virtual machine?

vCenter Server 4.x and vCenter Server 5.x support 1 virtual CPU per protected virtual machine. vCenter Server 6.0 is supported up to 4 CPUs, depending on licensing.

17. I am experiencing increased network latency on Fault Tolerant virtual machines, what can I do?

The *Increased Network Latency Observed in FT Virtual Machines* section in the vSphere 6.0 Troubleshooting Guide (<http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.troubleshooting.doc/GUID-6F893381-BD0B-4825-B4CD-414854A9D9D9.html>)

has a list of things to check to ensure your FT network is optimally configured.

18. Will there be a performance dip if I enable FT on VMs?

There will not be performance dip on enabling FT on VMs, provided that the resources are provisioned enough to run both primary and secondary VMs. For best practices to setup FT, see the VMware vSphere 6 Fault Tolerance- Architecture and Performance (<http://www.vmware.com/files/pdf/techpaper/VMware-vSphere6-FT-arch-perf.pdf>) White Paper.

19. What is the disk size supported for FT?

For disk size related information, see:

vSphere 6.0 - Compute Maximums (<https://www.vmware.com/pdf/vsphere6/r60/vsphere-60-configuration-maximums.pdf>)

vSphere 5.5 - Compute Maximums (<https://www.vmware.com/pdf/vsphere5/r55/vsphere-55-configuration-maximums.pdf>)

Related Information

For more information on Features and Devices Incompatible with Fault Tolerance, see the *Fault Tolerance Interoperability* section in the:

- vSphere 6.0 Availability Guide (<https://pubs.vmware.com/vsphere-60/index.jsp?topic=%2Fcom.vmware.vsphere.avail.doc%2FGUID-05EA00B4-8142-4388-9439-F949C30ACA03.html>)
- vSphere 5.5 Availability guide (<https://pubs.vmware.com/vsphere-55/index.jsp?topic=%2Fcom.vmware.vsphere.avail.doc%2FGUID-05EA00B4-8142-4388-9439-F949C30ACA03.html>)
- vSphere 5.0 Availability guide (<https://pubs.vmware.com/vsphere-51/index.jsp?topic=%2Fcom.vmware.vsphere.avail.doc%2FGUID-05EA00B4-8142-4388-9439-F949C30ACA03.html>)
- vSphere 5.0 Availability guide (https://pubs.vmware.com/vsphere-50/index.jsp?topic=%2Fcom.vmware.vsphere.avail.doc_50%2FGUID-05EA00B4-8142-4388-9439-F949C30ACA03.html)

For related information, see *Fault Tolerance Checklist* in the:

- vSphere 6.0 Availability Guide (<http://www.vmware.com/files/pdf/techpaper/VMware-vCenter-Server6-Availability-Guide.pdf>)
- vSphere 5.5 Availability Guide (<http://pubs.vmware.com/vsphere-55/topic/com.vmware.ICbase/PDF/vsphere-esxi-vcenter-server-55-availability-guide.pdf>)
- vSphere 5.1 Availability Guide (<http://pubs.vmware.com/vsphere-51/index.jsp#com.vmware.vsphere.avail.doc/GUID-83FE5A45-8260-436B-A603-B8CBD2A1A611.html>)
- vSphere 5.0 Availability Guide (http://pubs.vmware.com/vsphere-50/index.jsp#com.vmware.vsphere.avail.doc_50/GUID-83FE5A45-8260-436B-A603-B8CBD2A1A611.html)
- vSphere 4.1 Availability Guide (http://pubs.vmware.com/vsphere-4-esxi-installable-vcenter/index.jsp?topic=/com.vmware.vsphere.availability.doc_41/r_ft_checklist.html&resultof=%22fault%22)
- vSphere 4.0 Availability Guide (https://www.vmware.com/pdf/vsphere4/r40/vsp_40_availability.pdf)

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VMware Fault Tolerance FAQ (/s/article/2046297?r=2&other.KM_Utility.getAllTranslatedLanguages=1&other.KM_Utility.getArticleDetails=1&other.KM_Utility.getArticleMetadata=1&ui-comm-runtime-components-aura-components-siteforce-qb.Quarterback.validateRoute=1&ui-force-components-controllers-hostConfig.HostConfig.getConfigData=1)

VMware Fault Tolerance FAQ (/s/article/2046849?r=2&other.KM_Utility.getAllTranslatedLanguages=1&other.KM_Utility.getArticleDetails=1&other.KM_Utility.getArticleMetadata=1&ui-comm-runtime-components-aura-components-siteforce-qb.Quarterback.validateRoute=1&ui-force-components-controllers-hostConfig.HostConfig.getConfigData=1)

常见问题解答: VMware Fault Tolerance (/s/article/2075047?

r=2&other.KM_Utility.getAllTranslatedLanguages=1&other.KM_Utility.getArticleDetails=1&other.KM_Utility.getArticleMetadata=1&ui-comm-runtime-components-aura-components-siteforce-qb.Quarterback.validateRoute=1&ui-force-components-controllers-hostConfig.HostConfig.getConfigData=1)

FAQ: VMware Fault Tolerance (/s/article/2148898?r=2&other.KM_Utility.getAllTranslatedLanguages=1&other.KM_Utility.getArticleDetails=1&other.KM_Utility.getArticleMetadata=1&ui-comm-runtime-components-aura-components-siteforce-qb.Quarterback.validateRoute=1&ui-force-components-controllers-hostConfig.HostConfig.getConfigData=1)

Update History

04/24/2014 - Updated article with VMware ESXi 5.5.x

02/02/2016 - Added network latency FAQ entry.

Request a Product Feature

To request a new product feature or to provide feedback on a VMware product, please visit the Request a Product Feature (http://www.vmware.com/contact/contactus.html?department=prod_request) page.

Updated : May 25, 2017

Total Views : 14517

Categories :
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English

Product(s):

VMware ESX

VMware ESXi

Product Version(s):

VMware ESX 4.0.x

VMware ESX 4.1.x

VMware ESXi 4.0.x Embedded

VMware ESXi 4.0.x Installable

VMware ESXi 4.1.x Embedded

VMware ESXi 4.1.x Installable

VMware ESXi 5.0.x

VMware ESXi 5.1.x

VMware ESXi 5.5.x

VMware ESXi 6.0.x

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(<https://kb.vmware.com/kb/1013428>)