

Getting Started with vFabric Suite

VMware vFabric Suite 5.3

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VMware, Inc., 3401 Hillview Avenue, Palo Alto, CA 94304

www.vmware.com

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1. About Getting Started with vFabric Suite

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Getting Started with vFabric Suite describes product concepts and initial setup tasks for VMware® vFabric Suite™ products. Read this documentation for an overview of vFabric Suite components; to familiarize yourself with the licensing infrastructure; and to see walkthrough procedures for installing vFabric Suite components.

Intended Audience

Getting Started with vFabric Suite is intended for experienced Windows and Linux developers and system administrators who want to learn about vFabric Suite and its included components; install the vFabric License Server on an existing VMware® vCenter™ Server; and understand how vFabric licensing works.

2. Quick Start Guide

This section guides you through the end-to-end process of installing vFabric Suite in a vSphere environment, or more specifically, installing one vFabric component on a Red Hat Enterprise Linux (RHEL) virtual machine in the *context* of vFabric Suite. In particular, the procedure describes how to perform the following tasks:

- Create an ODBC data source on the Windows computer running vCenter Server that connects to either the database system used by vCenter Server or to a separate database system.

In this Quick Start Guide, it is assumed you are using a SQL Server database system, although you can also use other database system such as Oracle.

- Install vFabric License Server on the same computer as your vCenter Server.
- Activate a vFabric license.
- Install the VMware repository RPM on the RHEL virtual machine (VM), which makes it easy for you to browse the available vFabric RPMs.
- Install one vFabric component (vFabric tc Server) on the RHEL VM from the VMware RPM repository.

The procedure assumes a vSphere environment, although you can also install the vFabric License Server standalone in a physical or Amazon EC2 environment. The procedure shows you how to complete the entire installation process as quickly as possible, with minimal explanation of what each step means. For more details, and information about the standalone vFabric License Server, see [Installing vFabric Suite](#).

Prerequisites

- Install and configure vCenter Server and vSphere Client on a Windows computer.
See [vSphere Installation and Setup](#).
- Create the database instance that will contain vFabric license data. See [Guidelines for Creating the vFabric License Server Database Instance](#).
- Create a virtual machine (VM) and install Red Hat Enterprise Linux (RHEL) as the guest operating system.
See [vSphere Virtual Machine Administration](#).
- Install VMware Tools on the VM.
See [Installing and Configuring VMware Tools](#).
- Ensure that the Windows computer on which vCenter Server is running has the SQL Server Native Client ODBC driver installed on it; if not, download and install the driver from the [Microsoft SQL Server Web site](#).

Procedure

1. **Create an ODBC data source that connects to the vFabric database instance on either the vCenter database system, or an external database.**
 - a. On the Windows computer on which you are running vCenter Server, invoke the ODBC Data Source Administrator window using **Start > Programs > Administrative Tools > Data Source (ODBC)**.
 - b. Click the System DSN tab.
 - c. Click the Add... button.
 - d. Select the SQL Server Native Client driver, then click Finish.

- e. Enter a name and description of the data source, then select the SQL Server and database instance you want this data source to connect to from the drop-down list. The SQL Server database system can be either the one used by the vCenter Server or a separate one, whichever works best for your environment. Click Next.
- f. Specify that you want SQL server to verify the authenticity using a login ID and password entered by the user, then enter the Login ID and password of the SQL Server user. This database user must have privileges to load the schema.

VMware recommends that you *not* specify integrated Windows authentication.

- g. Continue clicking Next, and then Finish, taking all default values, until you see a summary of the data source configuration. Test the data source to ensure you have configured it correctly, then click OK.

2. From the Windows computer on which you are running vCenter Server, download the vFabric License Server installer from the [VMware Download Center](#) page and save it to your computer.

The installer program is called `vFabric_License_Server-version.exe`.

3. **Install the vFabric License Server on the same computer as your vCenter Server.**

- a. Double-click on the installer from Windows Explorer to start the installation. After preparing the installation, the vFabric Welcome Screen appears.
- b. Continue clicking **Next** to accept the license agreement and view where the installer will install the vFabric License Server.
- c. Enter the credentials of the vCenter user who has the appropriate privileges to register the vFabric License Server as an extension. At a minimum, the user must have the following vCenter privileges:

- **Extension.Register**
- **Extension.Update**

Click Next to continue.

- d. Enter the login ID and password of the database user, and select the ODBC data source (DSN) that you created in a preceding step.
- e. Click **Install** to proceed with the installation.

The installer program completes successfully when you see the message *InstallShield Wizard Completed*. Click **Finish** to complete the installation.

- f. Restart your vCenter Server to enable the vFabric License Server changes.

4. Make a note of the license key that you purchased for vFabric Suite. VMware license keys consist of groups of characters separated by dashes, such as 123AA-123BB-123CC-123DD-123EE.

5. **Activate the vFabric license keys in vCenter Server.**

- a. Start vSphere Client and log in to the vCenter Server in which you installed vFabric License Server.

Note: This procedure shows how to use version 5.0 of vSphere Client.

- b. Select **Home>Administration>Licensing** to invoke the vCenter Licensing page, then click the **Manage vSphere Licenses** link in the top-right corner.
- c. Enter one or more license keys in the text window to the right, one license key per line. Enter an optional label.
- d. Click the **Add License Keys** button. The license keys shows up in the review window.

- e. Follow the prompts until you get to the Confirm Changes window, verify changes, and click **Finish**.

The license keys are displayed in the main vCenter Licensing window under the name VMware vFabric Suite Standard | Advanced, depending on the vFabric Suite package you purchased.

6. Install the VMware repository RPM on the RHEL VM.

- a. Log in to the RHEL VM as the `root` user (or user with `sudo` privileges) and start a terminal.
- b. Run the following `wget` command.

Important: You must run the entire `wget` command on a single line. Be sure you include the `| sh` at the end, or the RPM installation will not work.

```
prompt# wget -q -O - packages.gopivotal.com | sh
```

Use `sudo` to run the preceding commands if you are not logged in as the `root` user.

7. Install vFabric tc Server on the RHEL VM.

- a. Log in to the VM as the `root` user (or user with `sudo` privileges) and start a terminal.
- b. Execute the following `yum install` command to install vFabric tc Server:

```
prompt# yum install vfabric-tc-server-standard
```

If necessary, use `sudo` to run the preceding commands if you are not logged in as the `root` user.

The `yum` command displays information about the contents of the installation.

- c. Enter **y** at the prompt to begin the installation.

If the installation is successful, you will see a `Complete!` message at the end.

The `yum` command installed tc Server in the `/opt/vmware/vfabric-tc-server-standard` directory.

What to do next

- Install additional vFabric components on the RHEL VM, such as vFabric Hyperic or vFabric RabbitMQ. See [Installing vFabric Suite](#).
- If your vFabric license includes open-source software (OSS) support and you have OSS components (such as Tomcat Apache) running on the VM, [configure the VM to track their usage](#).
- Monitor the vFabric Suite license usage by querying the vFabric License Server. See [Monitoring vFabric License Usage](#).

3. Overview of vFabric Suite 5.3

Cloud computing and IT as a service continue to transform application infrastructure and development. VMware® vFabric Suite™ drives this change by integrating the familiar Spring Developer Frameworks with a proven set of services that span the lifecycle of modern application development, deployment, and management. Engineered for VMware vSphere® virtualization and cloud environments, vFabric Suite offers advantages for users throughout the enterprise.

- Application developers and architects get tools that let them build data-intensive, Web-oriented applications quickly and reliably.
- IT gets an agile platform that makes applications easy to deploy, instantly scalable, and portable across clouds.
- End users get applications that are data rich, quick to access, and always available.

Subtopics

[vFabric Suite Editions and Components](#)

[Component Integration and Cross-Platform Consistency](#)

[Optimized for vSphere and Spring-Built Applications](#)

[Product Overviews](#)

vFabric Suite Editions and Components

vFabric Suite is available in two commercial editions, vFabric Suite Standard and vFabric Suite Advanced.

Table 3.1. vFabric Suite 5.3 Editions and Components

Component and Version	Description	vFabric Suite Standard Component	vFabric Suite Advanced Component
vFabric tc Server 2.9 (Spring Edition)	Lightweight application server, fully compatible with Apache Tomcat 7, that can be instantly provisioned and elastically scaled. Elastic Memory for Java (EM4J 1.3) is packaged with vFabric tc Server (Spring Edition), and Spring Insight Operations 1.9 is available as a separate download.	Yes.	Yes.
Elastic Memory for Java (EM4J 1.3)	Memory management technology that enables you to run more Java applications on your ESXi servers than previously possible. EM4J helps maintain Java application performance and reliability while freeing memory that allows you to run more VMs per host. An EM4J plug-in is now available for the vSphere Web Client.	Yes.	Yes.
Spring Insight Operations 1.9	Performance monitoring with real-time, multi-layered visibility into applications running on tc Server.	Yes.	Yes.
vFabric Hyperic 5.0	Proactive performance management with complete and constant visibility into applications and infrastructure.	Yes.	Yes.
vFabric GemFire 7.0 (Application Cache Node)	Data management platform that provides real-time, consistent access to data across widely	Yes.	Yes.

Component and Version	Description	vFabric Suite Standard Component	vFabric Suite Advanced Component
	distributed cloud architectures. GemFire Application Cache Node is the vFabric Suite offering for vFabric GemFire.		
vFabric Web Server 5.3	Precompiled and pretuned Web server and load-balancing service that dynamically routes requests to an application server for processing. vFabric Web Server is fully compatible with Apache Web Server.	Yes.	Yes.
vFabric RabbitMQ 3.0	De facto standard for cloud messaging and leading implementer of AMQP. Delivers highly available, scalable, and portable messaging with predictable, consistent throughput and latency.	No.	Yes.
vFabric SQLFire 1.1 (Professional)	Memory-optimized, distributed database management system that provides extremely high throughput; predictable latency; dynamic and linear scalability; and continuous availability of data.	No.	Yes.
vFabric Application Director 5.0 (Provisioning)	Cloud-enabled application provisioning solution that simplifies how to create and standardize application deployment topologies across cloud services.	No.	Yes.
vFabric Postgres 9.3 (Standard Edition)	ACID-compliant, ANSI-SQL-compliant transactional and relational database designed for the virtual environment and optimized for vSphere.	No.	Yes.

Component Integration and Cross-Platform Consistency

VMware performs full integration testing on each component in a vFabric Suite release.

Key integration points:

- vFabric Hyperic plug-ins are provided for each vFabric Suite 5.3 component. From a single management console, you can remotely monitor and manage all vFabric Suite components and applications, installed on multiple computers.
- User interfaces implement consistent LDAP integration for authentication in vFabric EM4J (vSphere console), Spring Insight, vFabric RabbitMQ (Admin UI), and vFabric Hyperic.
- A common API provides a consistent product interaction model. All products implement consistent REST and JSON API behavior.
- Application Director services are available for all versions of vFabric components included in vFabric Suite 5.3. Optimized for vFabric runtime components, vFabric Application Director is a cloud-enabled application provisioning solution that accelerates and automates the configuration and deployment of multi-tier applications.
- Spring Insight Operations provides automatic instrumentation of Spring applications running on tc Server, exposing application performance from both general and fine-grained perspectives.

- Hyperic- Spring Insight integration enables you to move from Hyperic to Insight, in the same application context, to diagnose the underlying problem. See [tc Server Plug-In for Easier Management and Monitoring](#).
- vFabric GemFire includes an HTTP session management module for tc Server that provide fast, scalable, and reliable session replication without requiring application changes.
- A sample application, Spring Trader, demonstrates how products in vFabric Suite work together.
- For details on vFabric Suite integration with vSphere and Spring, see [Optimized for vSphere and Spring-Built Applications](#).

Optimized for vSphere and Spring-Built Applications

Tight integration between vFabric Suite and vSphere enables you to achieve higher levels of software density, higher utilization rates on hardware, and the cost benefits of dynamic scalability. Through integration with vSphere solutions, vFabric also offers application portability and vendor choice across private and public clouds

More than half of Java developers use Spring's open-source platform to build rich Web applications for virtual and cloud environments. Spring minimizes vendor lock-in, enables code to run in diverse environments, and helps applications retain value as environments and business priorities change. Spring Mobile, Spring Android, and Spring Social extend the framework with the ability to run on the newest generation of devices.

vFabric Suite components are engineered to leverage vSphere and the efficiencies of Spring-built applications.

- vFabric Elastic Memory for Java (EM4J) enables memory to be shared dynamically among Java virtual machine (JVM) instances without sacrificing performance. With EM4J, you can deploy more application server VMs on each vSphere host to increase server consolidation, and automatically allocate Java heap memory to JVMs that need it most. EM4J's monitoring GUI supports vSphere 5.1.
- Spring Insight Operations, available with vFabric tc Server Spring Edition, provides a dashboard view of Spring application performance metrics in real-time. Developers can test, tune, and debug applications from their desktops, without changing code. Automatic instrumentation of Spring applications running on tc Server expose application performance from both general and fine-grained perspectives.
- To encourage agile development and testing, vFabric tc Server and Spring Insight are tightly integrated with SpringSource Tool Suite™ (STS). STS is an Eclipse-powered development environment that includes the latest Spring (Core, Rich Web, Integration, Batch), Groovy, Grails, and Roo technologies as well as OSGi tools. See [SpringSource STS](#).
- vFabric tc Server Spring Edition includes commercial support for Spring-built applications, as well as for vFabric tc Server.
- Developers can incorporate vFabric GemFire data caching into their Spring applications with minimal code, providing globally distributed, highly available data.
- vFabric RabbitMQ-based messaging solutions incorporate core Spring concepts, enabling developers to easily add AMQP messaging to their applications.

Product Overviews

The following sections describe key features and functionality of vFabric Suite components. For more detailed information, see the product documentation and release notes for each component.

vFabric tc Server 2.9 (Spring Edition)

VMware® vFabric™ tc Server is 100-percent compatible with Apache Tomcat 7. It has all the runtime advantages of Tomcat, plus operational management, advanced diagnostics, mission-critical support, and unmatched visibility into Spring-powered applications — none of which are available in the open source product. vFabric tc Server Spring Edition includes all of the components and features of tc Standard Edition, plus Spring Insight Operations, Elastic Memory for Java (EM4J), and Spring commercial support.

tc Server harnesses the power of traditional JEE architectures while eliminating their complexity and performance drawbacks, making it easier, faster, and more cost-effective to build and run cloud-ready applications. With its lean architecture and small, 10MB memory footprint, tc Server requires significantly fewer resources than conventional servers, which allows for greater server density in virtual and cloud environments. tc Server supports integration with VMware tools and vFabric Hyperic, and provides templates for vFabric GemFire session replication.

Main features of vFabric tc Server (Spring Edition):

- Compatible with existing Apache Tomcat applications, thus eliminating migration costs and cycles.
- Parallel deployment. Deploy multiple revisions of the same application at the same time so you can roll out a new revision of an application without affecting users.
- Automatic instance upgrades. A script lets you easily upgrade earlier instances to function with the latest version.
- Automated deployment of applications to multiple instances of tc Server and standardized templates for rapid provisioning of new instances.
- Commercial support for vFabric tc Server and Spring Framework.
- [Elastic Memory for Java \(EM4J\)](#). Included with tc Server Spring Edition, EM4J allows Java workloads to cooperate more fully with ESXi advanced memory-sharing technologies. EM4J helps maintain Java application performance and reliability while freeing memory so you can run more VMs per host, improving your consolidation ratio.
- [Spring Insight Operations](#). Available with tc Server Spring Edition, Spring Insight Operations is a Web application that gives you real-time, detailed visibility into application behavior and performance. Insight Operations is optimized for monitoring and tuning Spring-built applications in production.



For new feature information, see [vFabric tc Server Release Notes](#).

vFabric EM4J 1.3

Elastic Memory for Java (EM4J) revolutionizes the virtualization of Java applications.

Previously, if you ran Java on VMware ESXi, you had to reserve 100% of the configured memory for a VM running Java applications or risk serious performance problems. To determine the optimum size of the Java heap, you determined the application's peak requirement. Allocating less could mean unacceptable performance, errors, or crashes; allocating more than was necessary wasted memory.

EM4J changes all that. You can run more Java applications on your ESXi servers than previously possible, and Java applications can now effectively leverage ESXi's industry-leading memory sharing technology.

Main features of vFabric EM4J:

- Balloon that sits directly in the Java heap and works with a new memory-sharing interface introduced in ESXi 5.0. ESXi can share available memory in the Java heap among VMs as needed, while preserving application performance and reliability.
- Ability to size the Java heap to accommodate the peak workload, without wasting or running out of memory. Any excess memory is ballooned away and redistributed where it is needed.
- Ability to create more VMs and pack more tc Server instances onto a single vSphere host.
- Reduced possibility of out-of-memory errors that can cripple applications.
- EM4J plug-in for vSphere Web Client that lets you monitor EM4J configuration and memory performance for EM4J-enabled Java workloads in the vSphere Web Client. View Java workload statistics for selected VMs; detailed information about JVM process and memory usage; alerts; and suggested best practices.



For new feature information, see [vFabric EM4J Release Notes](#).

Spring Insight Operations 1.9

Spring Insight Operations gives you real-time, granular visibility into application behavior and performance in production environments. It is a Web application that runs with tc Server Spring Edition and is a separate download.

Insight Operations graphs the health of an application over time for the entire cluster and for each server in the cluster. Administrators see application and server problems as they occur, with detailed information about contributing events, presented in one unified dashboard. You can quickly identify under performing servers, server errors, and trace details for specific events and exceptions.

VMware partners with Google to integrate Spring Insight data into SpeedTracer, a Google Chrome extension that analyzes how your application is performing inside the browser and that ties browser performance to backend performance. If your Web application uses Ajax and other rich open Web technologies, try SpeedTracer with Spring Insight.

Main features of Spring Insight Operations:

- Automatic instrumentation of Spring applications running on tc Server expose application performance from both general and fine-grained perspectives.
- Isolation of performance problems by application, endpoint, application server, and method.
- Tracking of performance over time, to understand whether problems are chronic or spurious.
- Response-time histograms that reveal whether performance problems affect many users, or a small subset.
- High-performing instrumentation with sub-microsecond impact to application response time, designed for applications in production.
- Integration with vFabric Hyperic that enables operations and development teams to view a single set of both server-oriented and application-oriented performance, and collaborate more effectively to fix performance problems faster. Spring Insight metrics give Hyperic a broader range of data for triggering alerts and for control actions that implement automatic problem remediation.



For new feature information, see [vFabric tc Server Release Notes](#).

vFabric Hyperic 5.0

VMware® vFabric™ Hyperic® provides more than 50,000 performance metrics on more than 75 technologies at every layer of the application infrastructure. It consolidates complete discovery, monitoring, analysis and control of all application, system, and network assets -- including other vFabric Suite components -- both inside and outside of virtual machines powered by VMware. Hyperic provides proactive performance management through transparent visibility into dynamic applications deployed across physical, virtual, and cloud environments.

At startup, Hyperic automatically discovers and adds new servers and VMs to inventory; configures monitoring parameters; and collects performance metrics and events. This level of automation lets you deploy fully monitored VMs with minimal effort and scale out monitoring across your virtual infrastructure.

Main features of vFabric Hyperic:

- Simplifies management of virtualized applications by maintaining a continually updated inventory of vSphere ESXi and ESX hosts, their virtual machines, and guest operating systems.

- Single unified dashboard for managing and monitoring performance across all application tiers.
- tc Server plug-in for easier, remote management and monitoring of multiple tc Server instances and applications. See [tc Server Plug-In for Easier Management and Monitoring](#).
- Spring Insight plug-In for in-depth application monitoring. The plug-in makes it easier to discover whether a problem is infrastructure or application-related. See [Spring Insight Plug-In for In-Depth Application Metrics](#).
- Centralized plug-in manager that synchronizes Hyperic plug-ins between Hyperic Server and all Hyperic Agents in the environment, enabling system administrators to easily configure and upgrade agents distributed across hundreds of servers.
- iPad and iPhone support.
- Deeper integration with LDAP that enables the automatic import of existing LDAP user groups to preassign roles to users.
- Auto-discovery across all operating systems that run on vSphere and in disparate run-time environments, from Java to .NET.
- Bridges the gap between virtual and physical: compares guest and host metrics (CPU, memory, disk utilization); relates physical and virtual performance to individual applications.
- Advanced alerting: role-based, time-based (for geographically dispersed teams), server group-based, and so on. Automated alert responses and alert escalation processes.
- Ability to resolve a broad range of issues without human intervention, often before end users notice, with automated remediation that reduces mean time-to-resolution and ensures service level agreement (SLA) compliance.
- Plug-in framework that extends management and monitoring to any environment. Through the framework, Hyperic can discover, monitor, and control any application or device using a straightforward Java/XML API.
- Scales dependably from the ground up — to more than 1,000 servers and one million metrics per minute with a single Hyperic Server.



For new feature information, see [vFabric Hyperic Release Notes](#).

tc Server Plug-In for Easier Management and Monitoring

The Hyperic tc Server plug-in enables you to remotely manage vFabric tc Server instances and applications on multiple computers. Hyperic provides a single console with powerful dashboards through which you can:

- Manage the lifecycle of tc Runtime instances by starting, stopping, and restarting a local or remote instance.
- Manage the lifecycle of a *group* of tc Runtime instances that are distributed over a network of computers.
- Configure a single instance of tc Runtime. Configuration options include the various port numbers to which the tc Runtime instance listens, JVM options such as heap size and enabling debugging, default server values for JSPs and static content, JDBC datasources, various tc Runtime connectors, and so on.
- Deploy a Web application from an accessible file system, either local or remote. You can deploy to a single tc Runtime instance or to a predefined group of servers.
- Manage the lifecycle of applications deployed to a single tc Runtime instance or group of servers. Application lifecycle operations include start, stop, redeploy, undeploy, and reload.

Spring Insight Plug-In for Detailed Application Metrics

vFabric Hyperic includes the Spring Insight plug-in. The plug-in enables a Hyperic Agent running on a tc Server instance to auto-discover web applications running on that instance and to obtain detailed, real-time application health and request metrics. You can apply alerting on those metrics, as you can with other Hyperic resources and metrics. A new interface view of application

metrics associates the application to currently monitored Hyperic resources such as application servers, database servers, the operating system, and specific resource types. By providing all of this information on one screen, Hyperic makes it easier to pinpoint whether the problem is infrastructure- or application-related. If the application is the culprit, Hyperic-Insight integration enables you to move from Hyperic to Insight, in the same application context, to diagnose the underlying problem.

vFabric GemFire 7.0 (Application Cache Node)

VMware® vFabric™ GemFire® is a high performance, in-memory distributed data management solution that scales elastically at runtime, ensuring fast, reliable data access in the cloud and across the enterprise. GemFire is language- and infrastructure-neutral, which enables data-sharing across existing process, software, and hardware boundaries.

Business events often require many people to see the same information at the same time in globally distributed environments. These demands strain IT resources, degrade performance, and increase costs for bandwidth, hardware, and personnel. GemFire addresses the problem by provisioning consistent data dynamically at the right place, at the right time, and in the right format in memory. Using dynamic replication and data partitioning techniques, GemFire offers continuous availability, high performance and linear scalability for data-intensive applications without compromising data consistency, even under failure conditions. Data virtualization provides data location transparency and decouples data access logic from applications.



The vFabric Suite offering for vFabric GemFire is the Application Cache Node, which provides peer-to-peer functionality. You can buy an additional, separate license, Data Management Node, which includes client/server and global WAN functionality. For details, see the vFabric GemFire documentation.

Main features of vFabric GemFire:

- Applications run 4 to 40 times faster with no additional hardware.
- Data awareness and real-time business intelligence. If data changes as you retrieve it, you see the changes immediately.
- Re-engineered APIs and integration with Spring Framework speed and simplify the development of scalable, transactional enterprise applications.
- HTTP session replication provides linear scalability, and integrates cleanly with tc Server.
- Fixed partitioned regions, for greater control of deployment options.
- Portable Data eXchange (PDX) serialization, which provides reduced object size to store more data with less memory, and Language independence for better integration with .NET.
- Faster startup and recovery for persistent regions.
- Client-initiated transactions.
- Client querying using parameters.
- Combines redundancy, WAN replication, and a “shared nothing” persistence architecture to deliver fail-safe reliability and performance.
- Continuous querying to provide active data change notifications.
- Horizontally scalable to thousands of cache nodes, with multiple cache topologies to meet different enterprise needs. The cache can be distributed across multiple computers.
- Support for asynchronous and synchronous cache update propagation.
- Optimized low latency distribution layer for reliable asynchronous event notifications and guaranteed message delivery.



For new feature information, see [vFabric GemFire Release Notes](#).

HTTP Session Replication

The GemFire HTTP Session Management Module provides fast, scalable, and reliable HTTP session replication for vFabric tc Server, Oracle WebLogic Server, and Apache Tomcat with minimal or no application changes. Depending on your usage model, you can replicate session data across multiple peers, partition data across multiple servers, distribute session data across a WAN, or manage your session data in many other customizable ways.

vFabric RabbitMQ 3.0

VMware® vFabric RabbitMQ™ delivers highly available, scalable, and portable messaging with predictable, consistent throughput and latency. It is specifically designed to operate and scale in cloud environments, where applications leverage pools of shared infrastructure and data is routed between widely distributed applications. RabbitMQ is the leading implementation of AMQP, an open-standard messaging protocol created as an alternative to costly, proprietary commercial messaging technologies.

Main features of vFabric RabbitMQ:

- Offers customers and developers a consistent approach to messaging across multiple stacks and more than 70 developer platforms.
- Supports all modern messaging patterns: point-to-point (RPC style), point-and-shoot, publish-subscribe, multicast, and more. All are available as durable or non-durable message types.
- Protocol-based for better interoperability. Other messaging systems are API based, which limits their interoperability.
- Through protocol adapters, supports a full range of Internet protocols for lightweight in-browser messaging— including XMPP, SMTP, STOMP, and HTTP.
- Transparent integration with Spring Batch and Spring Integration.
- Supported on all major operating systems and developer platforms, and open-sourced under the Mozilla public license.
- JMS client support. The JMS Client for RabbitMQ feature is an implementation of the Java Message Service (JMS) 1.1 specification that uses the RabbitMQ Java client API. This feature allows new and existing JMS applications to connect with RabbitMQ brokers through AMQP. JMS applications can interoperate with AMQP clients on diverse platforms, including non-Java platforms.



For new feature information, see [vFabric RabbitMQ Release Notes](#).

vFabric Web Server 5.3

VMware® vFabric™ Web Server, which is compatible with Apache Web Server, distributes and dynamically balances application load to ensure optimal performance. Unlike Apache Web Server, vFabric Web Server is precompiled, prepatched, and pretuned, resulting in dramatically reduced time-to-deployment and substantially improved performance. vFabric Web Server provides scalability, enhanced security, and performance without the complexity and cost of sophisticated Web infrastructures. Support customers receive a standard, certified, easy-to-install software build, continual product updates, security alerts and patches, guaranteed bug fixes, indemnification on all software in the bundle, and expert technical support.



vFabric Web Server is similar to vFabric ERS. However, vFabric Web Server runs only in a virtual environment, on vSphere and vSphere guest operating systems. It is available exclusively as part of a vFabric Suite package. ERS runs on both vSphere and physical infrastructure.

Main features of vFabric Web Server:

- Sample template that automatically configures vFabric Web Server for a tc Server 2.6 instance.
- Precompiled builds that deliver up to 100% performance improvements, increasing uptime and reducing costs for hardware capacity.

- Guaranteed binary drop-in bug and security-fix help for every supported platform, to reduce the time you spend on security issues.
- Fast installation process that gets you up and running in minutes: consistent installation and directory structure across all operating systems, seamless integration with existing infrastructures, and no preset installation requirements.
- Easy installation of multiple instances of on a single server.
- Scalable management of multiple Web sites and servers.
- In addition to Apache httpd and its core modules, support for mod_ftp, mod_fcgid, openssl, openldap, mod_ik, mod_bmx, libexpat, libapr, zlib.



For new feature information, see [vFabric Web Server Release Notes](#).

vFabric SQLFire 1.1 (Professional)

VMware® vFabric™ SQLFire is a memory-optimized, distributed database management system designed for applications with highly demanding scalability and availability requirements. Applications can manage database tables entirely in memory, or they can overflow table data from memory to disk.

A flexible architecture enables SQLFire to pool memory and disk resources from hundreds of clustered members. This clustered approach provides extremely high throughput, predictable latency, dynamic and linear scalability, and continuous availability of data. SQLFire memory-speed write performance is well-suited for large-scale databases with high transaction volumes and demanding Service Level Agreements. For systems that require deployment of a relational database across a cluster of machines, such as a grid or cloud, SQLFabric's distributed, shared-nothing architecture can simplify the deployment while providing linear scalability.

Because it leverages the SQL interface and tools, Java, and other widely implemented technologies, SQLFire is easily adaptable to existing database applications. Moreover, a SQLFire distributed system can be scaled out using commodity hardware.

Main features of vFabric SQLFire:

- Enables applications to manage data entirely in memory through partitioning and synchronous replication that distributes data across numerous SQLFire members.
- Optimized disk persistence mechanism with a non-flushing algorithm to maintain high performance in applications that require stable, long-term storage.
- Memory-based data management that maintains consistently high application performance by eliminating lookup, read/write, and network round-trip latencies.
- Elastically scaled so that SQLFire servers can dynamically go online and offline to serve a growing or shrinking demand pattern.
- Collocation of application logic with data and execution of application logic in parallel substantially increases application throughput. SQLFire also transparently re-executes application logic if a server fails.
- Supports global WAN connectivity with the option of replicating data to remote clusters for disaster recovery.
- Based on SQL, JDBC and ADO.net standards. Supports Hibernate, Squirrel SQL Client, CDC, Spring JDBC, and more.



For new feature information, see [vFabric SQLFire Release Notes](#).

vFabric Application Director 5.0 (Provisioning)

VMware® vFabric™ Application Director is a cloud-enabled application provisioning solution that accelerates and automates the configuration and deployment of multi-tier applications. vFabric Application Director is optimized for vFabric components, but is extensible to other components that may be part of your Spring application. Starting [with](#) an intuitive drag-and-drop workspace, application architects can easily create and save complete deployment blueprints that can be deployed onto any cloud. These visual deployment topologies give you fine-grained control over installation dependencies and configuration changes, as well as editable scripts.

Main features of vFabric Application Director:

- True separation between applications and infrastructure, enabling the same blueprint to be reused on multiple virtual and cloud infrastructures.
- Familiar point-and-click user interface that lets you customize scripts, override configurations directly on the application blueprint, and execute deployments with the click of a button.
- Direct integration to cloud provider catalog for selecting virtual machine templates as the foundational components to build and deploy applications.
- A customizable catalog, populated with standard application components and scripts, that organizes application building blocks for easy reuse. A language-agnostic approach makes it easy to add any type of application infrastructure component to the catalog, and to deploy and update it.
- Version control for application blueprints that help standardize applications and allow organizations to reuse deployment plans on multiple clouds.
- Organized workflow and dependencies for creating highly orchestrated deployment execution plans that adapt to any cloud, application requirement, and IT compliance policy.
- Stored scripts to install, configure, start, and stop applications and application infrastructure components.



For new feature information, see [vFabric Application Director Release Notes](#).

vFabric Postgres 9.3 (Standard Edition)

VMware® vFabric™ Postgres Standard Edition (vFabric Postgres) integrates VMware virtualization technology and is compatible with Postgres SQL (psql) and the PostgreSQL tools and client drivers. It is ACID- and ANSI-SQL-compliant. You can create, run, and manage vFabric Postgres databases using the Data Director administration UI, or use vFabric Postgres client tools to connect to vFabric Postgres databases, load data, run scripts, perform backups, and run applications. (vFabric Suite does not include Data Director.)

vFabric Postgres databases offer elastic database memory, database-aware high availability, and automated optimal database configuration. The following list calls out vFabric Postgres enhancements over the standard Postgres database.

Main features of vFabric Postgres (Standard Edition):

- Achieves elastic database memory by participating in memory resource management with the vSphere guest operating system and vSphere Hypervisor. Responding to memory needs and availability, the vFabric Postgres buffer manager shrinks the database buffer pool to make memory available, and, when memory is available, accordingly increases the amount of memory dedicated to the buffer pool.
- Higher default values for many critical settings compared with standard Postgres databases, including the settings for `shared_buffers`, `checkpoint_segments`, and `wal_buffers`. These defaults give you higher out-of-the-box performance than standard Postgres and a database that you can tune more easily according to workload. (A slight tradeoff occurs in disk space and memory usage.)

- Checksums performed by default on each write operation to tables and indexes, ensuring that when vPostgres retrieves data, the data is clean.
- Allows you to configure the required crash-recovery Service Level Agreement (SLA), and tunes the checkpoint parameters dynamically as it monitors performance. This feature addresses the trade-off between configuring more frequent checkpoints (for less crash recovery time and lower performance) and configuring less frequent checkpoints (for higher performance and more crash recovery time). Solving the trade-off problem in the virtualized world is especially complex because resources allotted to the database virtual machine vary dynamically.



For new feature information, see [vFabric Postgres Release Notes](#).

4. vFabric Suite Licensing

vFabric Suite Standard and vFabric Suite Advanced packages are licensed on a per-machine and average-usage basis. This chapter explains how vFabric Suite licensing works.

Subtopics

[vFabric Licensing Terminology](#)

[How Licensing Works](#)

[Check the Validity of an Existing License Key](#)

vFabric Suite Licensing Terminology

To understand vFabric licensing, review the related terminology:

- **license key.** vFabric Suite production licensing requires a license key. The license key represents the licenses (also known as license units) that you have purchased, whether one or multiple licenses. A license key is an alphanumeric sequence of 25 characters that encodes details of the associated product, the license expiration date, the license capacity, and other information.
- **license unit.** A license unit is a single vFabric Suite license.
- **machine.** The definition of a *machine* depends on the infrastructure environment in which you are installing vFabric Suite:
 - In an Amazon EC2 environment, a machine is an [Amazon Machine Image \(AMI\)](#).
 - In a VMware vSphere environment, a machine is a virtual machine (VM).
 - In a physical computer environment, a machine is the central processing unit (CPU).
- **processing unit.** The definition of a *processing unit* depends on the infrastructure environment in which you are installing vFabric Suite:
 - In an Amazon EC2 environment, a processing unit is an [EC2 compute unit \(ECU\)](#).
 - In a VMware vSphere environment, a processing unit is a virtual central processing unit (vCPU).
 - In a physical computer, a processing unit is an internal processor core.
- **Cross-Cloud pricing.** Cross-cloud pricing refers to the ability to license vFabric Suite Standard or Advanced across virtual, cloud, and physical infrastructure.

How vFabric Suite Licensing Works

What type of licensing you get and how you activate it depends on whether you purchased your vFabric product(s) standalone or as part of a vFabric Suite package (Standard or Advanced).

Licensing for vFabric Suite

vFabric Suite Standard and vFabric Suite Advanced packages are licensed on a per-machine and average-usage basis.

Each licensed machine can run any or all vFabric software components. Thus licensing is tied to machines, rather than to component installations. One license unit covers one [machine](#) with a maximum of two [processing units](#). For example, in the Amazon EC2 environment, if you plan to install one or more vFabric components on a single Amazon Machine Image (AMI) configured with up to two EC2 compute units (ECU), you need only one vFabric license unit for that AMI. However, if the AMI is configured with four ECUs, then you need two vFabric license units for that AMI.

You obtain a pool of licenses that you activate by adding only one license key to the vFabric License Server. Rather than installing a license key on each machine, you register one license key that represents the number of license units that you have purchased. See [Activate vFabric Suite Licenses](#).

To check the validity of a license key, see [Check the Validity of an Existing License Key](#).

The production license is a V8 license that is perpetual for a particular version and package (Standard or Advanced) of vFabric Suite. If you do not install a license, your component installation defaults to an evaluation license, which is valid for 60 days after you first start the component. The license includes support for all vFabric products in your vFabric Suite Standard or vFabric Suite Advanced package.

Licensing for Standalone vFabric Components

If you purchase a vFabric component individually, rather than as part of a vFabric Suite Standard or Advanced package, you install license keys locally, on one or more machines. Local licensing does not involve integration with the vFabric License Server.



To install a local license for a standalone vFabric product, refer to the documentation for that product. Each product implements licensing in a slightly different way. To check the validity of a license key, see [Check the Validity of an Existing License Key](#).

Check the Validity of an Existing License Key

If you have previously installed one or more vFabric components, such as vFabric GemFire or vFabric tc Server, you might already have a license key (also referred to as a serial number in the following procedure). However, you need to confirm whether it is valid for the latest release of the component or in the context of vFabric Suite. The `vfabric-licensetool checkserial` utility checks the validity of your existing license key.

For each license key that you input, the utility displays detailed information such as the vFabric component to which it is associated, the type of license key, the capacity, and its expiration date.

Procedure

1. From the **Drivers and Tools** tab of the [download page for vFabric Suite Advanced or Standard](#), download the vFabric License Check Tool utility ZIP file onto the computer on which you want to run it.

The file is called `vfabric-vfchksn-version.bin.zip`.

2. Unzip the file into a directory.

The utility and supporting files are unzipped into the `vfabric-vfchksn-version` child directory.

3. If necessary, install a JDK or JRE on the computer.

Be sure the `JAVA_HOME` and `PATH` environment variables point to the JDK or JRE.

For example, if you installed the JDK in `/usr/java/jdk1.6.0_24`, you can set the environment variables in the user's Linux profile as follows:

```
export JAVA_HOME=/usr/java/jdk1.6.0_24
export PATH=$JAVA_HOME/bin:$PATH
```

4. Open a command (Windows) or terminal (Linux) window, change to the directory in which you unzipped the utility, and run the following (Linux):

```
prompt$ vfabric-licensetool checkserial [options] serial-number
```

On Windows:


```
prompt> vfabric-licensetool.bat checkserial [options] serial-number
```

You can specify the following options:

- `-f input-filename` : Read the license key from a text file called `input-filename` rather than from the command line.
- `-o output-filename` : Print results to a file called `output-filename` rather than to the standard output.
- `-?` : Print usage information.

For example, to view information about the validity of a license key (123AA-123BB-123CC-123DD-123EE in the example) and write the output to a file called `validity-output.txt`, run the following (Linux):

```
prompt$ cd /opt/vfabric/utils/vfabric-vfchksn-1.0.1
prompt$ vfabric-licensetool checkserial -o validity-output.txt 123AA-123BB-123CC-123DD-123EE
```

In the preceding example, it is implied that you unzipped the ZIP file into the `/opt/vfabric/utils` directory.

The `validity-output.txt` file contains information similar to the following:

```
123AA-123BB-123CC-123DD-123EE:
vFabric 5.1 License.
  Product:      vFabric
  Edition:      vf.pfm.adv
  Description:  VMware vFabric Advanced
  Quantity:     50
  ExpirationDate: never
  Addons:       none
```


5. Installing vFabric License Server and Activating Your License

Before you install vFabric Suite components, you need to install vFabric License Server and activate your vFabric Suite license.

1. Install vFabric License Server. How and where you install the License Server depends on your environment:
 - Install vFabric License Server on the same Windows machine on which you installed [VMware vCenter Server](#).
 - Install vFabric License Server on an EC2 instance that is running RHEL or on a physical machine that is running RHEL. Because you do not install the License Server as an extension of the vCenter environment, this scenario is referred to henceforth as [installing vFabric License Server Standalone](#) . This version of vFabric License Server is known as the standalone License Server.
2. [Activate your vFabric licenses](#).
3. Install individual vFabric Suite components (such as vFabric tc Server).
 - If you are installing vFabric Suite components on Red Hat Enterprise Linux (RHEL), you have two options: Use the yum command to install from an RPM file in the vFabric RPM repository, or install from a ZIP or TAR file from the standard VMware download Web site.
 - If you are installing on another supported operating system (such as Windows), you install the vFabric components from a package that you download from the VMware download Web site. If you install from a download page, the package might be in a *.zip, *.tar, or *.exe format, depending on the component.

This chapter provides installation-related procedures for vFabric License Server and describes how to activate your vFabric Suite license. For product installation instructions, see the [documentation for a particular vFabric component](#).

Subtopics

[Installing vFabric License Server on vCenter Server](#)

[RHEL Only: Install vFabric License Server Standalone](#)

[Activate vFabric Suite Licenses](#)

[Optionally Configure Computer to Track License Usage of OSS Components on RHEL](#)

[Upgrade vFabric License Server on vCenter Server](#)

[Uninstall vFabric License Server from vCenter Server](#)

[Uninstall Standalone vFabric License Server](#)

Installing vFabric License Server on Your vCenter Server

If you are installing vFabric License Server into your existing vCenter environment, install it on the same Windows computer that is running vCenter.

vFabric License Server requires a database to store and organize its data. The License Server fully supports using the database system associated with vCenter Server to store its license data. However, VMware recommends that you create a separate database instance for vFabric use so as to keep the data of the two products separate. (The term *database instance* refers to an Oracle database schema or a Microsoft database.) You can also use a completely separate database system. In either case, you must create an ODBC data source specifically for use by vFabric License Server, as described in the procedures that follow.

vFabric License Server supports Microsoft SQL Server and Oracle database systems. In general, the supported versions of each database system are the same as those supported by vCenter Server.

Prerequisites

- Install and configure vCenter Server and vSphere client on your Windows computer and be sure they are running correctly.

See [vSphere Installation and Setup](#).

- [Create a vFabric License Server database instance](#) and create an ODBC data source that connects to the vCenter database system or to a separate database system. Make sure that only vFabric License Server uses this ODBC data source. vFabric License Server supports Microsoft SQL Server and Oracle databases. See [Create the Microsoft SQL Server ODBC Data Source](#) or [Create the Oracle ODBC Data Source](#) for details.
- From the Windows computer on which you are running vCenter Server, download the vFabric License Server installer program from the [VMware Download Center](#) and save it to your computer.

The installer program is called `vFabric_License_Server-version.exe`.

Guidelines for Creating the vFabric License Server Database Instance

vFabric License Server fully supports using the database system associated with vCenter Server to store its license data. However, VMware recommends that you create a separate database instance for vFabric use so as to keep the data of the two products separate. (The term *database instance* refers to either an Oracle database schema or a Microsoft database.)

Follow these general guidelines when creating the database instance:

- **Access permissions:** In general, use the same database access permissions defined for the vCenter Server database.
- **Database size:** Estimating the size of the vFabric License Server database is an inexact science that depends on a number of variables. Most important is the number of vFabric component installations across all the VMs on your vCenter Server. The more installations you have, the more data collected by vFabric License Server, and the bigger the database. However, the amount of data collected by the license server for a particular component installation is relatively small. In sum, 5 GB should be more than adequate for the vFabric License Server database instance.

For reference information about creating databases (Microsoft SQL Server) and schemas (Oracle) as well as users and their required permissions, see:

- [Configure Microsoft SQL Server Databases](#)
- [Configure Oracle Databases](#)

Create the Microsoft SQL Server ODBC Data Source

Before you install vFabric License Server in a vCenter Server environment, you must create an ODBC data source that connects to the database system associated with vCenter Server or to a separate database system. If you use the vCenter database system, VMware recommends that you create a separate SQL Server database instance for vFabric use so as to keep the data of the two products separate. This ODBC data source should be used only by vFabric License Server. This section provides instructions for the Microsoft SQL Server database system.

Prerequisites

- Ensure that the Windows computer on which vCenter Server is running has the SQL Server Native Client ODBC driver installed on it; if not, download and install the driver from the [Microsoft SQL Server Web site](#).
- Create the database instance that will contain vFabric license data. See [Guidelines for Creating the vFabric License Server Database Instance](#).

Procedure

1. On the same Windows computer on which you are running vCenter Server, invoke the ODBC Data Source Administrator window: **Start > Programs > Administrative Tools > Data Source (ODBC)**.
2. Select the **System DSN** tab.

3. Click the **Add...** button.
4. Select the `SQL Server Native Client` driver. Click **Finish**.
5. Enter a name and description of the data source, then select the SQL Server you want this data source to connect to from the drop-down list. Click **Next**.

The SQL Server can be the one used by the vCenter Server or a different one, depending on which works best for your environment.

6. Specify that you want SQL Server to verify the authenticity with a login ID and password entered by the user, then enter the login ID and password of the SQL Server user. This database user must have privileges to load the schema.

VMware recommends that you do *not* specify integrated Windows authentication.

7. Continue clicking **Next**, accepting all default values, and then click **Finish**.

You see a summary of the data source configuration.

8. Test the data source to make sure you configured it correctly, then click **OK**.

Create the Oracle ODBC Data Source

Before you install vFabric License Server in a vCenter Server environment, you must create an ODBC data source that connects to either the database system associated with vCenter Server or to a separate database system. If you use the vCenter database system, VMware recommends that you create a separate database instance (also referred to as an Oracle database schema) for vFabric use so as to keep the data of the two products separate. This ODBC data source should be used only by vFabric License Server. This section provides instructions for the Oracle database system.

Prerequisites

- Install the appropriate Oracle ODBC driver on the vCenter Server Windows computer. You will use this driver to connect to your Oracle database.

Warning: The following procedure provides only general guidelines for installing the Oracle ODBC driver. Contact your Oracle database administrator for the instructions for your particular environment.

1. Download the following ZIP files from the [Instant Client for Microsoft Windows \(x64\)](#) Web site and unzip them into a directory:
 - **Instant Client Package - Basic:** All files required to run OCI, OCCI, and JDBC-OCI applications.
 - **Instant Client Package - ODBC:** Additional libraries for enabling ODBC applications.

For the remainder of this procedure it is assumed you unzipped the files into the `C:\instantclient_11_2` directory.

2. Set the `TNS_ADMIN` environment variable to the `C:\instantclient_11_2` directory and add the `C:\instantclient_11_2` directory to the `PATH` environment variable.
3. Open a command prompt and execute the following commands to install the ODBC driver:

```
prompt> cd C:\instantclient_11_2
prompt> odbc_install.exe
```

You should see the message `Oracle ODBC Driver is installed successfully`.

4. If necessary, create or update the `C:\instantclient_11_2\tnsnames.ora` file and define your Oracle database address so the ODBC driver can connect to it.
- Create the database instance that will contain vFabric Suite license data. See [Guidelines for Creating the vFabric License Server Database Instance](#).

Procedure

1. On the same Windows computer on which you are running vCenter Server, invoke the ODBC Data Source Administrator window: **Start > Programs > Administrative Tools > Data Source (ODBC)**.
2. Select the **System DSN** tab.
3. Click the **Add...** button.
4. Select the Oracle driver from the list. Click **Finish**.
5. In the Oracle ODBC Driver Configuration window, enter a Data Source Name and Description of the data source.

From the **TNS Service Name** drop-down list, select the Oracle database system and database to which this data source will connect. The entries in the list come from the `c:\instantclient_11_2\tnsnames.ora` file.

The Oracle database system can be the one used by the vCenter Server or another one, depending on which works best for your environment.

6. Enter the Oracle database user name in the **User ID** field.
7. Click **Test Connection**, enter the user's password, and ensure that you can connect to the Oracle database.
8. Click **OK**.

Install vFabric License Server on the vCenter Server

1. On the same Windows computer on which you are running vCenter Server, log in as the Administrator user (or user with administrator privileges) if you have User Account Control (UAC) enabled. If UAC is disabled, log in as any user.
2. Double-click the vFabric License Server installer program from Windows Explorer to start the installation.

The vFabric License Server welcome screen appears.



3. Continue clicking **Next** to accept the license agreement and view where the installer will install vFabric License Server.

You cannot change the location of vFabric License Server, which is a Web application and thus must be located in the `webapps` directory of the vCenter Tomcat instance.

4. Enter the credentials of the vCenter user who has the appropriate privileges to register the vFabric License Server as an extension. At a minimum, the user must have the following vCenter privileges:

- **Extension.Register**
- **Extension.Update**

By default, vCenter users with the Administrator role have all these privileges. However, users and roles may have been customized for your particular environment, so check with your vCenter Server administrator. See [Authentication and User Management](#) for information on assigning vCenter privileges.

1. Click **Next** to continue. The installer program performs the required validations and other tasks.
2. Enter the login ID and password of the database user, and select the ODBC data source (DSN) that you created as a [prerequisite](#) to this procedure.
3. Click **Install** to proceed with the installation.

The installer program installs the vFabric License Server, showing you a status of the installation as it performs its tasks.

The program completes successfully when you see the message *InstallShield Wizard Completed*.

4. To view details of the installation, click **Show the Windows Installer Log**. Click **Finish** to complete the installation.
5. Restart your vCenter Server to enable the vFabric License Server changes.
6. Optionally verify that the vFabric License Server is running by invoking the monitoring graphical UI. See [Monitor License Usage with the vFabric License Server Reporting UI](#).

What to do next

- [Activate vFabric Suite licenses](#) in your vCenter Server.
- Install one or more vFabric components, such as vFabric tc Server or vFabric GemFire, on a new or existing virtual machine (VM.) Refer to the [documentation for a particular vFabric component](#).
- If your vFabric Suite license includes open-source software (OSS) support, optionally configure the RHEL VM on which you have installed one or more OSS components to track their usage. OSS components you can track include Apache Tomcat, Apache HTTP Server, and RabbitMQ. You can track OSS usage only on RHEL computers. See [Optionally Configure Computer to Track License Usage of OSS Components on RHEL](#).
- Monitor vFabric Suite license usage by using the vFabric Suite command-line interface or graphical UI. See [Monitoring vFabric License Usage](#).

RHEL Only: Installing vFabric License Server Standalone

The standalone version of vFabric License Server (supported on RHEL operating systems only) can track license usage of all vFabric components that are configured to communicate with the License Server computer. The vFabric components might be installed on physical computers or on Amazon EC2 instances. Similarly, you install the License Server on a physical RHEL computer or an Amazon EC2 instance running RHEL.

The standalone vFabric License Server uses an internal database to store its licensing information. However, unlike the vCenter version of the vFabric License Server, you cannot configure it to use any other database server.

The vFabric License Server uses vFabric tc Server internally. If necessary, the installation of the vFabric License Server on RHEL will automatically install vFabric tc Server.

Prerequisites

- Be sure the RHEL computer on which you are going to install vFabric License Server has a JDK or JRE (Version 6 only) installed.

Set the following environment variables for the user who is going to install vFabric License Server (either `root` or a user with `sudo` privileges):

- `JAVA_HOME`: Points to the JDK or JRE installation.
 - `PATH`: Points to `JAVA_HOME/bin`.
- Install the vFabric repository RPM from which you will install the standalone vFabric License Server. In addition to the License Server, the vFabric repository contains all product RPMs that are certified with this release of vFabric Suite.
 1. On the RHEL computer (either physical or an Amazon EC2 instance), start a terminal either as the `root` user or as an unprivileged user with `sudo` capability.
 2. Install the vFabric repository RPM using the following `wget` command.

Important: You must run the entire `wget` command on a single line. Be sure you include the `| sh` at the end, or the RPM installation will not work.

```
prompt# wget -q -O - packages.gopivotal.com | sh
```

Use `sudo` to run the preceding commands if you are not logged in as the `root` user.

The command performs the following tasks:

- Imports the vFabric GNU Privacy Guard (GPG) key.
- Installs the vFabric 5.3 repository RPM.
- Launches the VMware End User License Agreement (EULA) acceptance and repository configuration script.
- Outputs the EULA for you to read; you must answer `yes` to accept the terms and continue.

Procedure

1. Log on as the `root` user (or unprivileged user with `sudo` privileges) to the RHEL computer (either physical or Amazon EC2 instance) on which you are going to install vFabric License Server, and start a terminal.
2. Execute the following `yum` command:

```
prompt# yum install vfabric-license-server
```

The `yum` command begins the install process, resolves dependencies, and displays the packages it will install.

If necessary, use `sudo` to run the preceding command if you are not logged in as the `root` user. For example:

```
prompt$ sudo yum install vfabric-license-server
```

Enter `y` at the prompt to begin the actual installation.

If the installation is successful, you see a `Complete!` message at the end.

3. Run the following script to initialize the vFabric License Server:


```
prompt# /opt/vmware/vfabric-license-server/server/create_vls_instance.sh
```

The script outputs what it is doing; the initialization is successful if you see output similar to the following at the end:

```
...
Instance created
Connector summary
  Port: 8443  Type: Blocking IO  Secure: true
```

Important Make note of the secure (HTTPS) port number because you will need it later when you configure vFabric component computers to communicate with the License Server. In the example above, the HTTPS port is 8443.

4. Ensure that the vFabric License Server has been correctly installed and initiated by starting it:

```
prompt# service vfabric-license-server start
```

You should see the following output:

```
Starting vfabric license server: [ OK ]
```

5. Optionally configure the License Server at boot :

```
prompt# chkconfig --level 35 vfabric-license-server on
```

Note Although this step is optional, VMware recommends it so you do not have to start the License Server manually each time you reboot your RHEL computer. If you do not perform this step, use the commands in the previous step to start and stop the License Server.

What the yum install command does

The `yum install vfabric-license-server` command:

- If the user does not already exist, adds a `vls` non-interactive user (in the group `vfabric`).

You cannot log in directly as the `vls` user because interactive login is disabled. Instead, log in as the `root` user (or as an unprivileged user using `sudo`), and then `su - vls`.

- Installs vFabric License Server into the `/opt/vmware/vfabric-license-server` directory and sets the owner of the directory, along with all child directories and files, to `vls:vfabric`.

What to do next

- [Activate vFabric Suite licenses for standalone License Server.](#)
- Install one or more vFabric components, such as vFabric tc Server or vFabric GemFire, on a computer that can access the RHEL computer on which you just installed the vFabric License Server. Refer to the installation instructions for the particular vFabric component for details.

Important: When using the standalone vFabric License Server on RHEL, you must also configure each tracked vFabric component to communicate with the vFabric License Server. See [Configure vFabric Components to Communicate with Standalone vFabric License Server](#).

- If your vFabric license includes open-source software (OSS) support, optionally configure the Red Hat Enterprise Linux (RHEL) computer on which you have installed one or more OSS components to track their usage. OSS components you can track include Apache Tomcat, Apache HTTP Server, and RabbitMQ. See [RHEL: Optionally Configure Computer to Track Open-Source Software Component Usage](#).
- Monitor vFabric license usage by using the vFabric Suite command-line interface or graphical UI. See [Monitoring vFabric License Usage](#).

Starting and Stopping the Standalone vFabric License Server

If you choose not to use `chkconfig` to configure standalone vFabric License Server to start at the same time you boot the RHEL computer, you must start and stop it manually.

Prerequisites

- [Install standalone vFabric License Server.](#)

Procedure

1. Log on to the RHEL computer on which you installed the standalone vFabric License Server as the `root` user (or as an unprivileged user who has `sudo` privileges) and start a terminal.
2. Start vFabric License Server:

```
prompt# service vfabric-license-server start
```

You should see the following output:

```
Starting vfabric license server: [ OK ]
```

3. Use similar commands to get status about the License Server and to stop it:

```
prompt# service vfabric-license-server status
prompt# service vfabric-license-server stop
```

Note: If you try to stop the License Server when it is not running, the `service vfabric-license-server stop` command returns `Fail`; this is correct behavior.

Configure vFabric Components to Communicate with Standalone vFabric License Server

For the standalone vFabric License server to track license usage of vFabric components, you must configure each computer on which you have installed vFabric components to communicate (via HTTPS) with the License Server RHEL computer. You do this by creating a simple file on the same computer on which the vFabric component is running, as described in the following procedure.

vFabric components might be installed on physical computers as well as Amazon EC2 instances. The procedure in this section applies to both.

Important: This section does not apply to vFabric Hyperic components. To configure vFabric Hyperic to communicate with the standalone License Server, you set the `vfabric.licenseServer.url` property in the Hyperic Server's `SERVER_HOME/conf/hq-server.conf` file to point to the License Server host and port. See [Configure vFabric License](#) for details.

Prerequisite

- Make note of the host on which vFabric License Server is installed and the secure (HTTPS) port of the License Server. The HTTPS port number was outputted when you [installed the License Server](#). The default secure port is 8443.

Procedure

1. Log on to the computer on which the vFabric component is installed; log on as the user who owns the vFabric component installation.
2. Create a file called `vflicense.properties`, located in the same directory as the component events file. This directory differs for each component; see [Location of vflicense.properties File](#) for details.
3. Edit the `vflicense.properties` file by adding a single property called `vfabric.licensing.server.address`, as shown in the following sample:

```
vfabric.licensing.server.address=https://host:port
```

where:

- *host* is the hostname of the vFabric License Server RHEL computer.
- *port* is the secure port number that the License Serve listens to for HTTPS requests.

For example, if your License Server is on host *myhost*, listening at the default HTTPS port 8443, the file would look like the following:

```
vfabric.licensing.server.address=https://myhost:8443
```

Location of vflicense.properties File

The `vflicense.properties` file points an installed vFabric component to the location of the standalone vFabric License Server. You create the `vflicense.properties` file in the same directory in which the vFabric component keeps its events file; this events file records particular events, such as the component start and stop times, as well as when it used its license.

The events file directory differs for each vFabric component. Depending on the component, the events file might be relative to an instance (such as tc Server) or relative to the component installation directory, as shown in the following table.

Table 5.1. Location of the vflicense.Properties File

vFabric Component	Location of vflicense.properties File
vFabric Web Server	<i>INSTALL_DIR/instance-name/conf</i> , where <i>INSTALL_DIR</i> refers to the main installation directory of vFabric Web Server (such as <i>/opt/vmware/vfabric-web-server</i> on RHEL), and <i>instance-name</i> refers to the name of the Web Server instance.
vFabric tc Server	<i>INSTANCE_DIR/instance-name/logs</i> , where <i>INSTANCE_DIR</i> refers to the directory that contains vFabric tc Server instances (such as <i>/var/opt/vmware/vfabric-tc-server-standard</i> on RHEL), and <i>instance-name</i> refers to the name of the tc Server instance.
Spring Insight Operations	<i>INSTANCE_DIR/instance-name/logs</i> , where <i>INSTANCE_DIR</i> refers to the directory that contains the vFabric tc Server instance that is hosting Spring Insight (such as <i>/var/opt/vmware/vfabric-tc-server-standard</i> on RHEL), and <i>instance-name</i> refers to the name of the tc Server instance. Note that the name <i>Spring Insight Operations</i> will not show up on the vFabric License Server usage report; rather, the tc Server instance in which Spring Insight is running will show up instead.
vFabric EM4J	<i>INSTANCE_DIR/instance-name/logs</i> , where <i>INSTANCE_DIR</i> refers to the directory that contains the vFabric tc Server instance that is hosting EM4J (such as <i>/var/opt/vmware/vfabric-tc-server-standard</i> on RHEL), and <i>instance-name</i> refers to the name of the tc Server instance.
vFabric GemFire	GemFire Cache Server working directory.
vFabric SQLFire	SQLFire Server working directory.
vFabric RabbitMQ	<i>/opt/vmware/vFabric</i> (RHEL) or <i>c:\ProgramData\VMware\vFabric</i> (Windows)
vFabric Postgres	<i>/opt/vmware/vFabric</i> (RHEL) or <i>c:\ProgramData\VMware\vFabric</i> (Windows)

Activate vFabric Suite Licenses

VMware offers VMware V8 production licenses for the vFabric Suite Standard and vFabric Suite Advanced platform packages. The license is perpetual for a particular version and package of vFabric Suite.

The following procedures describe how to active your vFabric licenses, depending on the environment in which you installed the License Server:

- [Activate a vFabric Suite License in vCenter](#)
- [Activate a vFabric Suite License with a Standalone License Server](#)

Activate a vFabric Suite License in vCenter

You activate vFabric licenses on vCenter Server using the vSphere Client.

Prerequisites

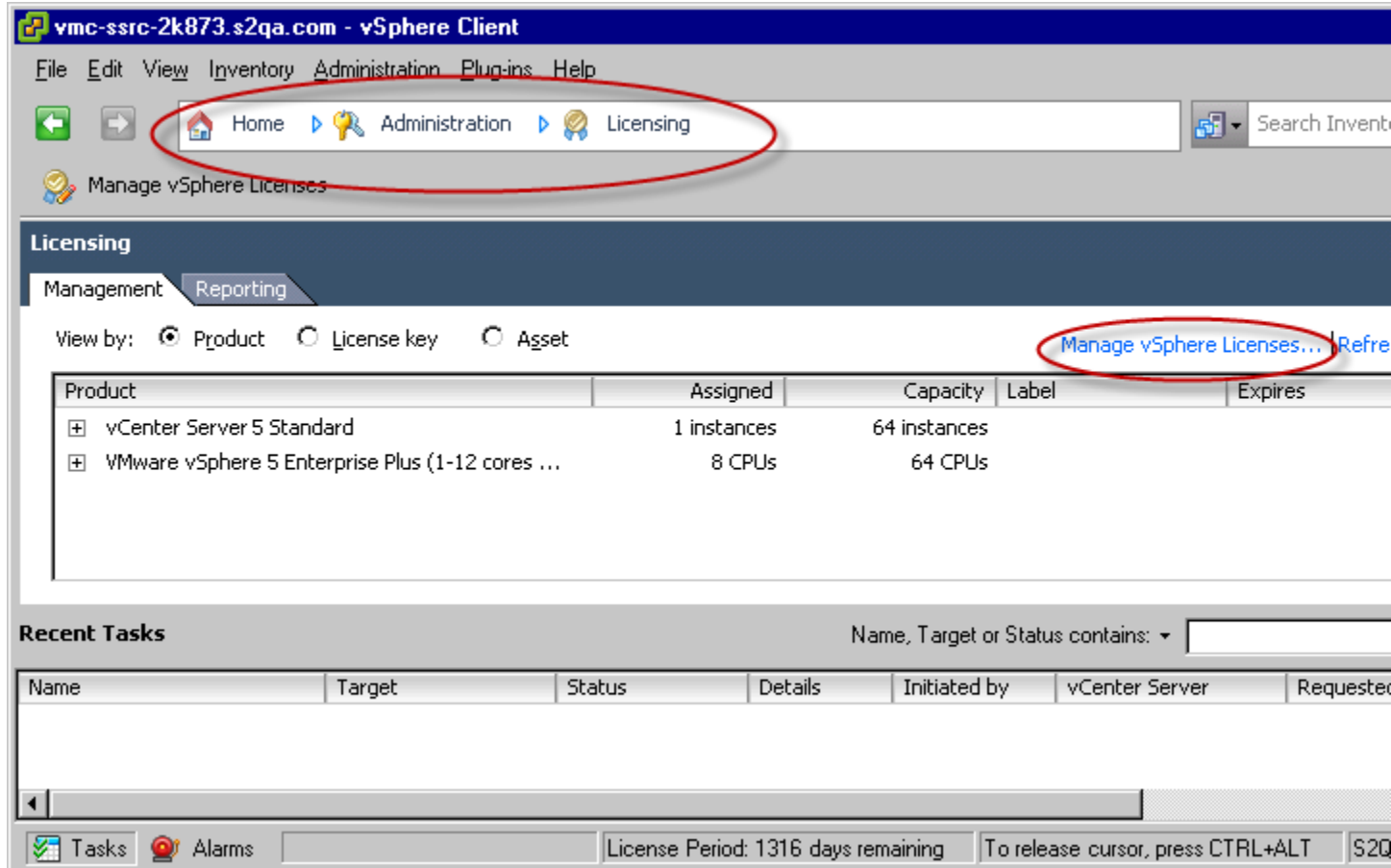
- [Install vFabric License Server on your vCenter Server.](#)
- Decide how many vFabric Suite license units you need, purchase them, and then get your license key from the VMware license portal. See [How Licensing Works with vFabric Suite Standard and Advanced.](#)

Procedure

1. Start vSphere Client and log in to the vCenter Server in which you installed vFabric License Server.

Note: This procedure shows how to use version 5.0 of vSphere Client.

2. Select **Home > Administration > Licensing** to invoke the vCenter Licensing page, then click the **Manage vSphere Licenses** link in the top-right corner, as shown in the screenshot.



3. Enter one or more license keys in the text window to the right, one license key per line. Enter an optional label.
4. Click the **Add License Keys** button. The license key shows up in the review window.
5. Repeat the preceding steps to add any additional license keys.
6. Click **Next** and follow the prompts until you get to the Confirm Changes window, verify changes, then click **Finish**.

The license keys are displayed in the main vCenter Licensing window under the name VMware vFabric Suite Standard | Advanced, depending on the vFabric Suite package you purchased.



The vCenter Licensing page displays only the capacity of your vFabric Suite license; it does not actually keep track of the number of licenses currently assigned. See [Monitoring vFabric License Usage](#) for information on using the monitoring commands.

Activate a vFabric Suite License with the Standalone License Server

You activate vFabric licenses when using the standalone vFabric License Server on RHEL by updating a file with your serial numbers. The vFabric License Server reads this file every minute.

Prerequisites

- [Install the standalone vFabric License Server on your RHEL computer.](#)
- Decide how many vFabric Suite license units you need, purchase them, and then get your license key from the VMware license portal. See [How Licensing Works with vFabric Suite Standard and Advanced.](#)

Procedure

1. On the RHEL computer on which you installed the standalone vFabric License Server, log on as the `root` user, or as a user who has `sudo` privileges.
2. If you have not already done so, create a file called `serials.txt` in the `/opt/vmware/vfabric-license-server/server/vls/webapps/vfabric-license-server/WEB-INF/classes` directory. This directory is created as part of the installation of the standalone vFabric License Server.
3. Add your license keys to the `serials.txt` file, one key per line, as shown in the following example:

```
----- VMware vFabric Standard -----  
AB123-BC234-CD345-DE456-EF567  
  
----- VMware vFabric Advanced -----  
FG123-GH234-HI345-IJ456-JK567  
KL123-LM234-MN345-NO456-OP567
```

Optionally Configure Computer to Track License Usage of OSS Components on RHEL

If your vFabric license includes support for open-source software (OSS) components, you can also monitor the usage of the OSS components installed on Red Hat Enterprise Linux (RHEL) computers. To do this you must first install a vFabric OSS license agent on the computer, as described in this section. Subsequently, when you monitor the vFabric license usage with the monitoring commands or the user interface, the open-source components will also be included in the usage numbers along with the vFabric components.

You can monitor usage of the following open-source components. Click on the links to view the supported versions and additional information about the support provided by VMware.

- [Apache Tomcat](#)
- [Apache HTTP Server](#)
- [RabbitMQ](#)

Prerequisites

- [Install the vFabric repository RPM.](#) The vFabric RPM repository contains the OSS license agent RPM, which is called `vfabric-agent`.
- Ensure that `crontab` is installed and running on your RHEL computer. The vFabric OSS license agent runs as a cron job.

Procedure

1. Log in as the `root` user on the RHEL computer on which you are going to install the OSS license agent and start a terminal.
2. Execute the following `yum` command to install the OSS license agent:

```
prompt# yum install vfabric-agent
```

The `yum` command begins the install process, resolves dependencies, and displays the packages it plans to install.

The `yum` command automatically chooses the appropriate RPM package based on your architecture (32- or 64-bit).

3. Enter `y` at the prompt to begin the actual installation.

If the installation is successful, you will see a `Complete!` message at the end.

4. If you are using the standalone (non-vSphere) version of vFabric License Server, configure the OSS license agent to communicate with the License Server by creating a file called `vflicense.properties` that contains a single property (`vfabric.licensing.server.address`), as shown in the following sample:

```
vfabric.licensing.server.address=https://host:port
```

where:

- `host` is the hostname of the vFabric License Server RHEL computer.
- `port` is the secure (HTTPS) port number that the License Server listens to for HTTPS requests.

These secure port number was outputted when you [installed the License Server](#).

For example, if your License Server is on host `myhost`, listening at the default HTTPS port 8443, the file would look like the following:

```
vfabric.licensing.server.address=https://myhost:8443
```

Save the `vflicense.properties` file in the `/opt/vmware/vfabric-agent` directory.

You do not perform this step if you install vFabric License Server in a vSphere environment.

Your RHEL computer is now configured to automatically detect whether any of the supported OSS components are installed and to periodically send usage information to the vFabric License Server.

What the `vfabric-agent` RPM install does

The `yum` install of the `vfabric-agent` RPM performs the following tasks on the RHEL computer:

- If it doesn't already exist, creates the `vfabric` group.
- Copies the following files and directories (owned by `root:vfabric`) to disk:

```
/etc/cron.d/vfabric-agent
/opt/vmware/vfabric-agent
/opt/vmware/vfabric-agent/vfdetect-license.cfg
/opt/vmware/vfabric-agent/vfdetect-scripts
/opt/vmware/vfabric-agent/vfdetect-scripts/oss.rmq
/opt/vmware/vfabric-agent/vfdetect-scripts/oss.tc
/opt/vmware/vfabric-agent/vfdetect-scripts/oss.ws
/opt/vmware/vfabric-agent/vfdetect.log
/usr/sbin/vfdetect
```

The `/etc/cron.d/vfabric-agent` file contains the following line:

```
*/10 * * * * root /usr/sbin/vfdetect /opt/vmware/vfabric-agent/vfdetect-scripts
```

The `/opt/vmware/vfabric-agent` directory will contain the state and log files of the OSS license agent.

Upgrade vFabric License Server on vCenter Server

Upgrade vFabric License Server to the latest version to get the latest features and bug fixes.

Prerequisites

- From the Windows VM on which you are running vCenter Server, download the new version of the vFabric License Server installer program from the [VMware Download Center](#) and save it to your computer.

The installer program is called `vFabric_License_Server-version.exe`.

Procedure

1. On the same Windows VM on which you are running vCenter Server, double-click the vFabric License Server installer program from Windows Explorer to start the upgrade.
2. Click **Yes** to begin the upgrade, and continue clicking **Next** to accept the license agreement and finish the upgrade. The upgrade procedure keeps the same metadata that was there when you first installed the License Server.
3. When the upgrade completes, restart vCenter Server for the upgrade changes to take effect.

Uninstall vFabric License Server from vCenter Server

Uninstalling vFabric License Server removes the Web application from the vCenter Tomcat instance, but it does not remove the vFabric licensing data from the database; you must perform that step yourself.

Procedure

1. Log on to the Windows computer on which you are running vCenter Server and on which you installed vFabric License Server.
2. From the Windows Control Panel, start the window from which you add or remove programs. On Windows XP, the window is called `Add or Remove Programs`. On Windows Server, the window is called `Programs and Features`.
3. Select `VMware vFabric License Server` in the list of programs and uninstall it.
4. If you want to unregister vFabric License Server from vCenter, enter the credentials of the vCenter user who has, at a minimum, the following vCenter privilege:

- **Extension.Unregister**

By default, vCenter users with the Administrator role have this privilege, although you might have customized the users and roles for your particular environment, so check with your vCenter Server administrator. See [Authentication and User Management](#) for information on assigning vCenter privileges.

If you do not want to unregister vFabric License Server, do not enter any credentials.

5. Click **Next** to finish uninstalling.

What to do next

- If you want to delete the vFabric licensing data from the database, you must do this manually. Consult the vCenter administrator if you use the internal vCenter database to store license data, or the database administrator of the separate database.

Uninstall Standalone vFabric License Server

Uninstalling the standalone version of vFabric License Server completely removes it from your RHEL computer, including the internal database that contains all usage data of vFabric components.

Procedure

1. Log on to the RHEL computer on which you installed the standalone vFabric License Server as the `root` user (or as an unprivileged user who has `sudo` privileges) and start a terminal.
2. Stop the vFabric License Server:

```
prompt# service vfabric-license-server stop
```

Note: If the License Server was not running, the previous command returns `Fail`; this is correct behavior.

3. Uninstall the vFabric License Server by running the following `yum` command:

```
prompt# yum remove vfabric-license-server
```

4. If you previously used `chkconfig` to configure the License Server to start at computer boot-time, run the following command to unconfigure it:

```
prompt# chkconfig --level 35 vfabric-license-server off
```


6. Monitoring vFabric License Usage

vFabric Suite provides command-line tools and a simple Web user interface to monitor vFabric license usage by the virtual and physical computers on which vFabric Suite components are installed.

Note: If you installed the vFabric License Server in a vSphere environment (which means you installed the license server on the same computer on which vCenter Server is installed), you also *activated* vFabric licenses using the vSphere client. However, you cannot use the vSphere client user interface to monitor the vFabric license usage; rather, you must use the commands described in this chapter.

Subtopics

[Monitor License Usage with Command-Line Tools](#)

[License Monitoring Command Reference](#)

[Monitor License Usage with the vFabric License Server Reporting UI](#)

[Display the Component Events File in Readable Format](#)

[vCenter License Reporting Manager](#)

Monitor License Usage with Command-Line Tools

vFabric Suite provides four command-line tools to monitor current and periodic vFabric license usage by the virtual and physical computers on which you are running vFabric components. You run these tools on the same computer on which you installed the vFabric License Server.

For the complete list of commands, see [License Monitoring Command Reference](#).

Prerequisites

- The vFabric license-usage reports require a 64-bit JDK or JRE (version 6).
- If you are using vFabric Suite in a vSphere environment, by default the reports use the JRE installed with vCenter Server, located in the `c:\Program Files\VMware\Infrastructure\jre` directory. The reports use the following line to add these Java binaries to the `PATH` variable:

```
SET PATH=%PATH%;C:\Program Files\VMware\Infrastructure\jre\bin
```

If you have installed your own JDK or JRE on the vCenter Server computer, and updated the system `PATH` variable with its location, the vFabric license-usage reports will use that JDK/JRE instead. This should not cause any problems, as long as the JDK/JRE is 64-bit and version 6. If it is not, then you must change the `SET PATH` line in the license reports to the following:

```
SET PATH=C:\Program Files\VMware\Infrastructure\jre\bin;%PATH%
```

The preceding sample assumes the default location of the VMware infrastructure directory; if you installed vCenter into a different directory, then make the appropriate change.

Procedure

1. On the computer on which you installed vFabric License Server, open a command prompt (Windows) or terminal (Linux) and change to one of the following directories, depending on the environment in which you installed the license server:
 - **vSphere:** `vCenter-Install-Dir\vFabric Platform\Reporting`, where `vCenter-Install-Dir` refers to the directory in which you installed vCenter Server (default is `C:\Program Files\VMware\Infrastructure`.)

- **RHEL standalone (that is, a non-vSphere environment):** /opt/vmware/vfabric-license-server/bin

For example, on the Windows VM on which vCenter Server is installed:

```
prompt> cd c:\Program Files\VMware\Infrastructure\vFabric Platform\Reporting
```

If you installed standalone vFabric License Server on a RHEL computer:

```
prompt$ cd /opt/vmware/vfabric-license-server/bin
```

2. Run the desired monitoring command.

For example, run the `usage-over-periods` command to display vFabric license usage over a period of time. Specify the start and end dates of the time period, as well as the period, such as monthly or yearly. Output is shown after the command. Usage refers to the number of licenses in use.

```
prompt> usage-over-periods.bat -startDate 09/01/2012 -endDate 09/4/2012 -period WEEKLY

Period: WEEKLY
License Key,Dates,Minimum Usage,Maximum Usage,Average Usage
123AA-123BB-123CC-123DD-123EE,"Sep 1, 2012 - Sep 7, 2012",2,4,3.1
123AA-123BB-123CC-123DD-123EE,"Sep 8, 2012 - Sep 14, 2012",2,3,2.5
123AA-123BB-123CC-123DD-123EE,"Sep 15, 2012 - Sep 21, 2012",1,1,1
123AA-123BB-123CC-123DD-123EE,"Sep 22, 2012 - Sep 28, 2012",1,1,1
123AA-123BB-123CC-123DD-123EE,"Sep 29, 2012 - Sept 30, 2012",0,1,0.64
```

For descriptions and examples of each command, see [License Monitoring: Command Reference](#). The commands for Windows and Linux are the same, except that Windows commands have a `.bat` suffix and the Linux commands have a `.sh` suffix.

License Monitoring: Command Reference

The following sections provide complete reference documentation for the following vFabric license monitoring commands:

- [current-usage](#)
- [current-versions](#)
- [usage-over-periods](#)
- [versions-over-periods](#)

Depending on the environment in which you installed the vFabric License Server, you run a Windows version of the monitoring command (vSphere environment) or a Linux version (standalone RHEL environment.)

The following example shows how to run a monitoring command on Linux:

```
prompt$ ./current-usage.sh
```

The equivalent on Windows is as follows:

```
prompt> current-usage.bat
```

The remainder of this topic provides Windows examples.

In the sections, *usage* refers to the number of vFabric licenses that are assigned to a computer (virtual or physical) running one or more vFabric components, such as vFabric tc Server, and *capacity* refers to the number of vFabric licenses you have purchased.

Command options available only in a vSphere environment are flagged as such.

current-usage

Displays the current vFabric license usage and capacity, organized by license key.

When running in a vSphere environment and no relevant options are specified, the command displays information for the entire vCenter Server.

Syntax

```
current-usage [-group group | -cluster name | -datacenter name | -resourcePool name ]
```



You can specify only *one* of these options: `-group`, `-cluster`, `-datacenter`, or `-resourcePool`.

Table 6.1. Options of `current-usage`

Option	Description
<code>-group group</code>	<p>(vSphere Environment Only) Groups the output of the <code>current-usage</code> command by cluster, resource pool, or data center. The output lists the specific cluster, resource pool, or data center for each license usage entry.</p> <p>Possible values (specify only one):</p> <ul style="list-style-type: none"> • <code>cluster</code> • <code>resourcePool</code> • <code>datacenter</code> <p>For example, to group by resource pool, specify <code>-group resourcePool</code>.</p>
<code>-cluster cluster-name</code>	<p>(vSphere Environment Only) Displays current usage and capacity information for the specified cluster.</p>
<code>-datacenter datacenter-name</code>	<p>(vSphere Environment Only) Displays current usage and capacity information for the specified virtual data center.</p>
<code>-resourcePool resourcePool-name</code>	<p>(vSphere Environment Only) Displays current usage and capacity information for the specified resource pool.</p>

Example

The following example shows how to run the `current-usage` command to get a report of the total current vFabric license usage.

```
prompt> current-usage.bat
```

The output will look something like the following:

```
License Key,Quantity Licensed,Quantity Available,Current Usage
123AA-123BB-123CC-123DD-123EE,500,498,2
```

The entry shows the 500-license vFabric license key, with 498 licenses available and 2 currently in use.

To limit the report to the current usage on the myVDC datacenter, run the following:

```
prompt> current-usage.bat -datacenter myVDC
```

current-versions

Displays the current number of computers (virtual or physical) that are running one or more vFabric Suite components along with the component name and versions.

When running in a vSphere environment and no relevant options are specified, the command displays information for the entire vCenter Server.

Syntax

```
current-versions [-group group | -cluster name | -datacenter name | -resourcePool name ]
```



You can specify only *one* of these options: `-group`, `-cluster`, `-datacenter`, or `-resourcePool`.

Table 6.2. Options of `current-versions`

Option	Description
<code>-group group</code>	<p>(vSphere Environment Only) Groups the output of the <code>current-versions</code> command by cluster, resource pool, or data center. The output lists the specific cluster, resource pool, or data center for each license usage entry.</p> <p>Possible values (specify only one):</p> <ul style="list-style-type: none"> • <code>cluster</code> • <code>resourcePool</code> • <code>datacenter</code> <p>For example, to group by resource pool, specify <code>-group resourcePool</code>.</p>
<code>-cluster cluster-name</code>	<p>(vSphere Environment Only) Displays the current number of virtual machines in the specified cluster that are running one or more vFabric components along with the component name and versions.</p>
<code>-datacenter datacenter-name</code>	<p>(vSphere Environment Only) Displays the current number of virtual machines in the specified data center that are running one or more vFabric components along with the component name and versions.</p>
<code>-resourcePool resourcePool-name</code>	<p>(vSphere Environment Only) Displays the current number of virtual machines in the specified resource pool that are running one or more vFabric components along with the component name and versions.</p>

Example

The following example shows how to view all the currently-installed vFabric and open-source components that the vFabric License Server is tracking and the number of virtual machines on which each component is installed, grouped by datacenter:

```
prompt> current-versions.bat -group datacenter
```

The output will look something like the following; note that one of the components the License Server is tracking is open-source Apache Tomcat:

```
Datacenter Name,Component Name,Component Version,Number of Machines
Camb_vFabric,Apache Tomcat,7.0.30,1
Camb_vFabric,VMware vFabric tc Server,2.8.0.RELEASE,1
Camb_vFabric,VMware vFabric Web Server,5.2.0,1
```

usage-over-periods

Displays a report of vFabric license usage over a period of time, organized by license key. The report includes the minimum, maximum, and average number of vFabric licenses that have been assigned to computers (virtual or physical) over the specified period.

When running in a vSphere environment and no relevant options are specified, the command displays information for the entire vCenter Server.

Syntax

```
usage-over-periods {-days number | range} [-group group | -cluster name | -datacenter name | -resourcePool name ] [-period period]
```

The following table lists the options for this command.

Table 6.3. Options of usage-over-periods

Option	Description
<code>-days number</code>	Specifies a date range in which the end date is <i>today</i> and the start date is the current date minus <i>number</i> of days. For example, use <code>-days 90</code> to specify an approximate date range of the last three months. You must specify <i>either</i> the <code>-days</code> option or the two options to specify a custom data range (<code>-startDate</code> and <code>-endDate</code>), but not both.
<code>-startDate MM/DD/YYYY</code> <code>-endDate MM/DD/YYYY</code>	Used together, these two options specify a custom date range. Use <code>-startDate</code> to specify the start date of the report; use the form <i>MM/DD/YYYY</i> , such as 06/01/2012 for a start date of June 1, 2012. Use <code>-endDate</code> to specify the end date of the report. For example, to specify a date range between April 1, 2012 and June 30, 2012, use the following: <code>-startDate 04/01/2012 -endDate 06/30/2012</code> . You must specify <i>either</i> <code>-startDate</code> and <code>-endDate</code> or the <code>-days</code> option, but not both.
<code>-group group</code>	(vSphere Environment Only) Groups the output of the <code>usage-over-periods</code> command by cluster, resource pool, or data center. The output will list the specific cluster, resource pool, or data center for each license usage entry. Possible values (specify only one): <ul style="list-style-type: none">• <code>cluster</code>• <code>resourcePool</code>• <code>datacenter</code> For example, to group by resource pool, specify <code>-group resourcePool</code> . You can specify only <i>one</i> of the following options: <code>-group</code> , <code>-cluster</code> , <code>-datacenter</code> , or <code>-resourcePool</code> .
<code>-cluster cluster-name</code>	(vSphere Environment Only) Displays periodic usage information for the specified cluster. You can specify only <i>one</i> of the following options: <code>-group</code> , <code>-cluster</code> , <code>-datacenter</code> , or <code>-resourcePool</code> .
<code>-datacenter datacenter-name</code>	(vSphere Environment Only) Displays periodic usage information for the specified virtual data center. You can specify only <i>one</i> of the following options: <code>-group</code> , <code>-cluster</code> , <code>-datacenter</code> , or <code>-resourcePool</code> .
<code>-resourcePool resourcePool-name</code>	(vSphere Environment Only) Displays periodic usage information for the specified resource pool. You can specify only <i>one</i> of the following options: <code>-group</code> , <code>-cluster</code> , <code>-datacenter</code> , or <code>-resourcePool</code> .
<code>-period period</code>	Specifies the period that the report covers, such as daily or monthly, during the specified date range (see previous two entries). Valid values are: <ul style="list-style-type: none">• <code>DAILY</code>• <code>WEEKLY</code>• <code>MONTHLY</code>• <code>QUARTERLY (90 days)</code>• <code>YEARLY</code>• <code>ALL</code> Default value is <code>DAILY</code> .

Example

The following example shows how to run the `usage-over-periods` command to display vFabric license usage over a period of time. You must specify the start and end dates of the time period, as well as the period, such as monthly or yearly.

```
prompt> usage-over-periods.bat -startDate 09/01/2012 -endDate 09/30/2012 -period WEEKLY
```

The output will look something like the following:

```
Period: WEEKLY
License Key,Dates,Minimum Usage,Maximum Usage,Average Usage
123AA-123BB-123CC-123DD-123EE,"Sep 1, 2012 - Sep 7, 2012",2,4,3.1
123AA-123BB-123CC-123DD-123EE,"Sep 8, 2012 - Sep 14, 2012",2,3,2.5
123AA-123BB-123CC-123DD-123EE,"Sep 15, 2012 - Sep 21, 2012",1,1,1
123AA-123BB-123CC-123DD-123EE,"Sep 22, 2012 - Sep 28, 2012",1,1,1
123AA-123BB-123CC-123DD-123EE,"Sep 29, 2012 - Sept 30, 2012",0,1,0.64
```

The output shows the minimum, maximum, and average use (number of active computers, physical or virtual, which are assigned a license) of a single vFabric license key for each week in the month of September 2012. If you had installed additional vFabric license keys, then these would also show up in the report.

Another example is to view the year-to-date usage of your vFabric Suite licenses. For example, if today is July 31, 2012:

```
prompt> usage-over-periods.bat -startDate 08/01/2011 -endDate 07/31/2012 -period YEARLY
```

The output will look something like the following:

```
License Key,Period,Minimum Usage,Maximum Usage,Average Usage
123AA-123BB-123CC-123DD-123EE,"Aug 1, 2011 - July 31, 2012",50,75,30.5
```

To view the daily usage over the last 90 days and group the output by the associated resource pool, run the following command:

```
prompt> usage-over-periods.bat -days 90 -group resourcePool
```

versions-over-periods

Displays a report of the computers that have run each vFabric component included in vFabric Suite over a period of time. The report includes the minimum, maximum, and average number of computers over the specified time period.

When running in a vSphere environment and no relevant options are specified, the command displays information for the entire vCenter Server.

Syntax

```
versions-over-periods {-days number | range} [-group group | -cluster name | -datacenter name | -resourcePool name ] [-period per
```

The following table lists the options for this command.

Table 6.4. Options of usage-over-periods

Option	Description
-days <i>number</i>	Specifies a date range in which the end date is <i>today</i> and the start date is the current date minus <i>number</i> of days. For example, use -days 90 to specify an approximate date range of the last three months. You must specify <i>either</i> the -days option or the two options to specify a custom data range (-startDate and -endDate), but not both.
-startDate <i>MM/DD/YYYY</i> -endDate <i>MM/DD/YYYY</i>	Used together, these two options specify a custom date range. Use -startDate to specify the start date of the report; use the form <i>MM/DD/YYYY</i> , such as 06/01/2012 for a start date of June 1, 2012. Use -endDate to specify the end date of the report. For example, to specify a date range between April 1, 2012 and June 30, 2012, use the following: -startDate 04/01/2012 -endDate 06/30/2012. You must specify <i>either</i> the -startDate and -endDate or the -days option, but not both.
-group <i>group</i>	(vSphere Environment Only) Groups the output of the versions-over-periods command by cluster, resource pool, or data center. The output will list the specific cluster, resource pool, or data center for each license usage entry. Possible values (specify only one):

Option	Description
	<ul style="list-style-type: none"> • cluster • resourcePool • datacenter <p>For example, to group by resource pool, specify <code>-group resourcePool</code>.</p> <p>You can specify only <i>one</i> of the following options: <code>-group</code>, <code>-cluster</code>, <code>-datacenter</code>, or <code>-resourcePool</code>.</p>
<code>-cluster cluster-name</code>	<p>(vSphere Environment Only) Displays periodic component version information for the specified cluster.</p> <p>You can specify only <i>one</i> of the following options: <code>-group</code>, <code>-cluster</code>, <code>-datacenter</code>, or <code>-resourcePool</code>.</p>
<code>-datacenter datacenter-name</code>	<p>(vSphere Environment Only) Displays periodic component version information for the specified virtual data center.</p> <p>You can specify only <i>one</i> of the following options: <code>-group</code>, <code>-cluster</code>, <code>-datacenter</code>, or <code>-resourcePool</code>.</p>
<code>-resourcePool resourcePool-name</code>	<p>(vSphere Environment Only) Displays periodic component version information for the specified resource pool.</p> <p>You can specify only <i>one</i> of the following options: <code>-group</code>, <code>-cluster</code>, <code>-datacenter</code>, or <code>-resourcePool</code>.</p>
<code>-period period</code>	<p>Specifies the period that the report covers, such as daily or monthly. Valid values are:</p> <ul style="list-style-type: none"> • DAILY • WEEKLY • MONTHLY • QUARTERLY (90 days) • YEARLY • ALL <p>Default value is DAILY.</p>

Example

The following example shows how to view a monthly report of the number of computers that have run the vFabric components from September 1, 2012 to October 04, 2012:

```
prompt> versions-over-periods.bat -startDate 09/01/2012 -endDate 10/04/2012 -period MONTHLY
```

The output will look something like the following:

```
Period: MONTHLY
Component Name,Component Version,Dates,Minimum Number of Machines,Maximum Number of Machines,Average Number of Machines
VMware vFabric tc Server,2.8.0.RELEASE,"Sep 1, 2012 - Sep 30, 2012",0,0,0
VMware vFabric tc Server,2.8.0.RELEASE,"Oct 1, 2012 - Oct 4, 2012",0,1,0.53
Apache Tomcat,7.0.30,"Sep 1, 2012 - Sep 30, 2012",0,0,0
Apache Tomcat,7.0.30,"Oct 1, 2012 - Oct 4, 2012",0,1,0.31
VMware vFabric Web Server,5.2.0,"Sep 1, 2012 - Sep 30, 2012",0,0,0
VMware vFabric Web Server,5.2.0,"Oct 1, 2012 - Oct 4, 2012",0,1,0.37
VMware vFabric tc Server,2.6.2.RELEASE,"Sep 1, 2012 - Sep 30, 2012",1,1,1
VMware vFabric tc Server,2.6.2.RELEASE,"Oct 1, 2012 - Oct 4, 2012",0,1,0.68
VMware vFabric Spring Insight,1.5.1.SR3,"Sep 1, 2012 - Sep 30, 2012",1,1,1
VMware vFabric Spring Insight,1.5.1.SR3,"Oct 1, 2012 - Oct 4, 2012",0,1,0.68
```

The output includes the name of the component and versions, the period of reporting, and the minimum, maximum, and average number of computers (physical or virtual) on which the component was running. Note that the report includes information about open-source components, such as Apache Tomcat.

The following example is similar, but limits the output to the `mycluster` cluster rather than the entire vCenter server.

```
prompt> versions-over-periods.bat -startDate 09/01/2012 -endDate 10/04/2012 -period MONTHLY -cluster mycluster
```

Monitor License Usage with the vFabric License Server Reporting UI

The vFabric License Server Reporting web user interface provides a graphical representation of the vFabric license usage and capacity for a particular vCenter server or for a set of computers that the standalone vFabric License Server is tracking. The web user interface provides similar output as the monitoring commands but with one difference: you cannot limit the output to specific resource pools, clusters or data centers as you can with the command-line tools ; rather, the user interface always shows the usage and capacity for the entire vCenter server.

Procedure

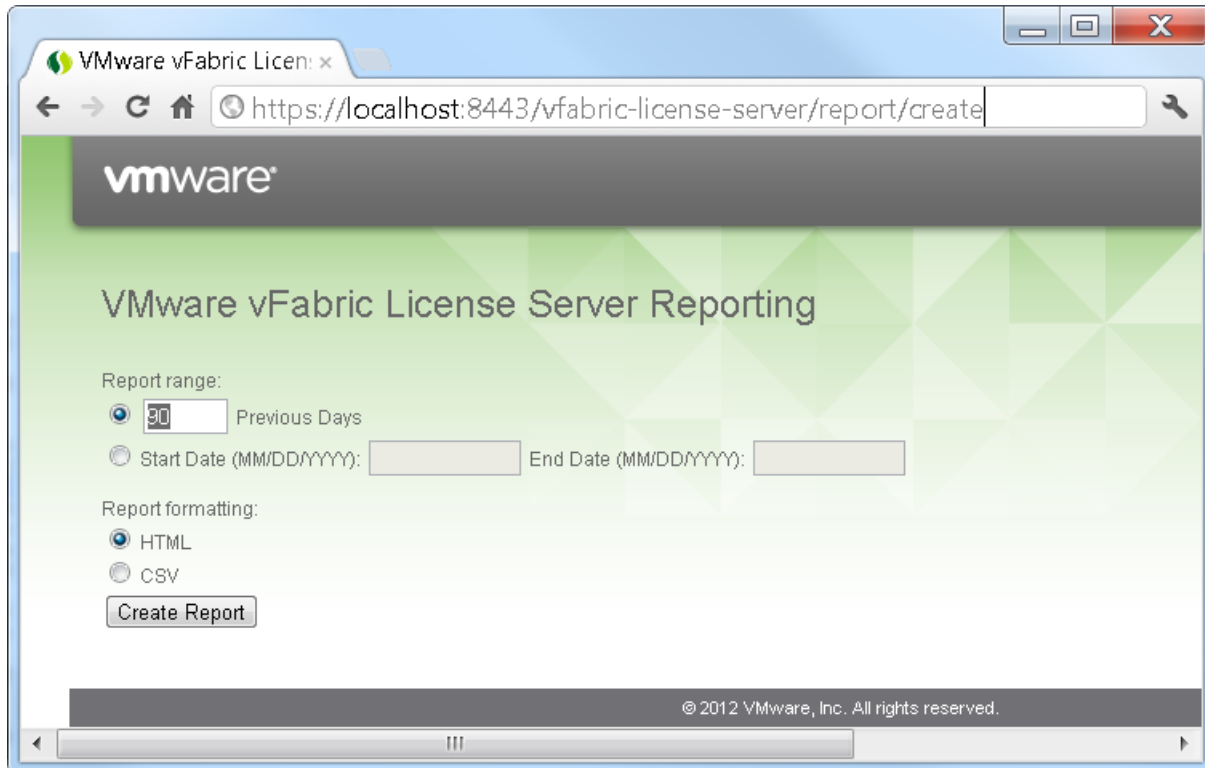
1. Invoke the vFabric License Server UI in your browser by navigating to the following URL:

```
https://host:8443/vfabric-license-server/report/create
```

where *host* is the IP address or hostname of the computer on which you installed the vFabric License Server. If your browser is on the same computer, you can use *localhost*:

```
https://localhost:8443/vfabric-license-server/report/create
```

The following Web page appears:



2. Specify a range of dates by either entering the number of days *previous* to the current date, or entering a specific start- and end-date.
3. Specify the output of the report: either an HTML Web page that is rendered immediately, or a downloadable * .csv file that you can open in a spreadsheet program, such as Microsoft Excel, or import into a database application.
4. Click `Create Report`.
5. If you specified HTML output, a Web page similar to the following appears:

License Key	Dates	Minimum Usage	Maximum Usage	Average Usage
Y5N8LJ0TLKJUNR0DE-00C0N-AET8UJ	Jul 5, 2012 - Oct 3, 2012	0	1	0.5
U0R0K-00L0S-00R0E-00G0F0A-00U0A	Jul 5, 2012 - Oct 3, 2012	0	1	0.5

Component Name	Component Version	Dates	Minimum Number of Machines	Maximum Number of Machines	Average Number of Machines
VMware vFabric tc Server	2.8.0.RELEASE	Jul 5, 2012 - Oct 3, 2012	0	1	0.5
VMware vFabric tc Server	2.6.2.RELEASE	Jul 5, 2012 - Oct 3, 2012	0	1	0.5
Apache Tomcat	7.0.30	Jul 5, 2012 - Oct 3, 2012	0	1	0.5
VMware vFabric Spring Insight	1.5.1.SR3	Jul 5, 2012 - Oct 3, 2012	0	1	0.5
VMware vFabric Web Server	5.2.0	Jul 5, 2012 - Oct 3, 2012	0	1	0.5

vFabric License	Quantity Licensed	Current Usage
VMware vFabric Advanced	250	1

[Define another report](#)

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The output shows the minimum, maximum, and average usage of the two vFabric license keys that have been activated. The date range is the last 90 days from the current day (in this case October 3, 2012.) The middle table lists all the vFabric and open-source software (OSS) components that the vFabric License Server is tracking, the version of the installed component, and the minimum, maximum, and average license usage for each component over the same period. Note that in the example above, the vFabric License Server is tracking both open-source Apache Tomcat and vFabric tc Server. The bottom table shows a summary of the vFabric Standard and vFabric Advanced license keys, with capacity and usage.

Display the Component Events File in Readable Format

Each vFabric component keeps an events file that records particular events, such as the component start and stop times, as well as when it used its license. This events log file is difficult to read in its raw form, so you can use the `vfabric-licensetool printevents` utility to display these events in a more readable format.

Prerequisites

- If necessary, install a JDK or JRE on the computer on which the vFabric component is installed.

Be sure the `JAVA_HOME` and `PATH` environment variables point to the JDK or JRE.

For example, if you installed the JDK in `/usr/java/jdk1.6.0_24`, you can set the environment variables in the user's Linux profile as follows:

```
export JAVA_HOME=/usr/java/jdk1.6.0_24
export PATH=$JAVA_HOME/bin:$PATH
```

Procedure

1. On the computer on which the vFabric component is installed, download the vFabric License Check Tool from the **Drivers and Tools** tab of the [download page for vFabric Suite Advanced or Standard](#).

The file is called `vfabric-vfchksn-version.bin.zip`.

2. Unzip the file into a directory.

The utility and supporting files are unzipped into the `vfabric-vfchksn-version` child directory.

3. Open a command (Windows) or terminal (Linux) window, change to the directory in which you unzipped the utility, and run the following (Linux):

```
prompt$ vfabric-licensetool printevents -f events-file
```

On Windows:

```
prompt> vfabric-licensetool printevents -f events-file
```

In the preceding commands, `events-file` refers to the full pathname of the component events file that you want to display. Each component names and stores its events file differently. See [Location of vflicense.properties File](#) for the location of the events file for each component (it is the same location as that of the `vflicense.properties` file). The following table shows the name of the events file for each vFabric component:

Table 6.5. Name of the Events File For Each vFabric component

vFabric Component	Name of Events File
vFabric Web Server	<code>vf.ws-events.txt</code>
vFabric tc Server	<code>vf.tc-events.txt</code>
Spring Insight Operations	<code>vf.ins-events.txt</code>
vFabric EM4J	<code>vf.emj-events.txt</code>
vFabric Hyperic	<code>vf.hyp-events.txt</code>
vFabric GemFire Data Management Node	<code>vf.gf.dmn-events.txt</code>
vFabric GemFire Application Cache Node	<code>vf.gf.acn-events.txt</code>
vFabric SQLFire	<code>vf.sf-events.txt</code>
vFabric RabbitMQ	<code>vf.rmq-events.txt</code>
vFabric Postgres	<code>vf.vpg-events.txt</code>

For example, to display event log information in readable fashion for a vFabric tc Server component in which the events file is in its default RHEL location, run the following (Linux):

```
prompt$ cd /opt/vfabric/utils/vfabric-vfchksn-1.2.0.6
prompt$ ./vfabric-licensetool printevents -f /var/opt/vmware/vfabric-tc-server-standard/myserver/logs/vf.tc-events.t
```

In the preceding example, it is implied that you unzipped the ZIP file into the `/opt/vfabric/utils` directory.

You should see output similar to the following:

```
2012-10-02T20:28:01 [INFO] The license client's event manager has started.
2012-10-02T20:28:03 [INFO] A local license has been activated with serial number = AB123-AB123-AB123-AB123-AB123, to
    expiration type = floating-eval, expiration date = unset, allowed components = oss.rmqs-2+vf.ins-2+vf.ws-5+vf.tc
    vf.vpg-9.1+vf.rmqs-3+vf.emj-1+oss.ws-2+vf.ws-6+oss.tc-7+vf.gf.acn-6+vf.ins-1+vf.tc-2+vf.gf.acn-7+oss.tc-6+vf.rmqs
2012-10-02T20:28:04 [INFO] Calculated new state for license with total available units = 60, license type = default,
    enforcement = soft, addons = <empty>. It now has a total used count of 0.
2012-10-02T20:28:05 [INFO] Component Instance "self" changed state to "on" at 2012-10-02T20:28:04.
2012-10-02T21:28:05 [INFO] Calculated new state for license with total available units = 60, license type = default,
    enforcement = soft, addons = <empty>. It now has a total used count of 1.
2012-10-02T22:28:06 [INFO] Calculated new state for license with total available units = 60, license type = default,
    enforcement = soft, addons = <empty>. It now has a total used count of 1.
2012-10-02T23:28:06 [INFO] Calculated new state for license with total available units = 60, license type = default,
    enforcement = soft, addons = <empty>. It now has a total used count of 1.
2012-10-03T00:28:07 [INFO] Calculated new state for license with total available units = 60, license type = default,
    enforcement = soft, addons = <empty>. It now has a total used count of 1.
...
```

You can also specify the `-o output-file` option to print the results to a file called `output-file` rather than to the standard output. For example, to write the output to a file called `events-out.txt`:

```
prompt$ ./vfabric-licensetool printevents -f /var/opt/vmware/vfabric-tc-server-standard/myserver/logs/vf.tc-events.t
```

vCenter License Reporting Manager

The vCenter License Reporting Manager displays the capacity of your vFabric Suite license, although it does not keep track of the number of licenses currently assigned. To get the usage summary (both current and periodic) from the vFabric License Server, you run Windows commands or use a simple Web user interface.

For details about how to monitor vFabric license usage, see the preceding sections in this chapter, [Monitoring vFabric License Usage](#).

7. FAQ: vFabric Suite Integration and Off-Cycle Releases

VMware certifies the products listed in the [vFabric Suite 5.3 Component table](#) as an integrated suite of components. This certification ensures seamless integration when you use components together in development or production deployment environments.

In addition to the specific component versions listed in the component table, all Maintenance releases within each component Minor release line are fully integration tested and supported with vFabric Suite.

Because vFabric Suite components are loosely coupled, component products may release independently of a vFabric Suite release in order to meet their distinct customer needs in a timely manner. Thus a particular component occasionally requires an *off-cycle* Major or Minor standalone release. A vFabric Suite license includes full production support for an off-cycle release of a component only when that component becomes formally included in a Generally Available (GA) vFabric Suite release.

Can I get early access to off-cycle component releases?

Yes, customers can get early access to licensed releases for development and evaluation use only.

How do I get access?

The easiest way for you to access an off-cycle release is to download and install an evaluation version from <http://www.vmware.com/products/>. Evaluation downloads provide a 60-day evaluation cycle, which in many cases is sufficient time for the next official version of vFabric Suite to be released.

What if I need a non-evaluation license?

Your existing vFabric Suite license covers your non-evaluation use. However, in some cases a component product may implement runtime constraints that are recognized by the installed license key and that may require an updated license key in order to run correctly in non-evaluation mode. VMware will publish a [Knowledge Base \(KB\) article](#) for each off-cycle release that tells you whether an updated license key is required, and if so, tells you how to obtain and install it. Search the KB archive using your product name and `off-cycle` as keywords.

What support am I as a vFabric Suite customer entitled to for off-cycle releases?

Support is provided to you equivalent to development use. VMware makes every attempt to work with you and resolve any issues with an off-cycle product release. However, VMware does not identify any issues as production-critical because this particular support is for development use only. Because only development-level support is offered for the off-cycle product, customers are encouraged to use the latest available vFabric Suite release components when working with the off-cycle version.

As previously mentioned, a vFabric Suite license includes full production support for an off-cycle release of a component only when that component becomes formally included in a Generally Available (GA) vFabric Suite release.

Why doesn't VMware offer vFabric Suite production support for off-cycle releases?

VMware does significant integration testing for each vFabric Suite release. Certifying a specific combination of component product versions on a twice-yearly basis gives customers a predictable and consumable release schedule. This schedule allows customers to deploy applications with the confidence that production support is available and consistent on that combination of products over an extended period. Because VMware does not perform full integration testing of all vFabric Suite components with each off-cycle release of a particular vFabric Suite component, we are not prepared to offer production support for the use of an off-cycle release with vFabric Suite as an integrated suite of component technologies.

As previously mentioned, a vFabric Suite license includes full production support for an off-cycle release of a component only when that component becomes formally included in a Generally Available (GA) vFabric Suite release.

Can I still get production support for the standalone product?

Yes. All off-cycle releases are certified for production use in the context of their use as a standalone product. Note that full production support for an off-cycle release generally requires a license for the standalone product that is separate from a vFabric Suite license.

Can I mix and match component versions between vFabric Suite versions?

If you are using two components in an integrated fashion and depending on them to work together seamlessly, you need to use component versions from the same vFabric Suite version to ensure component compatibility. However, if your use requires no integration between the components, you can mix and match to suit the upgrade and deployment needs of your application.