This document supports the version of each product listed and supports all subsequent versions until the document is replaced by a new edition. To check for more recent editions of this document, see http://www.vmware.com/support/pubs.
You can find the most up-to-date technical documentation on the VMware Web site at:
http://www.vmware.com/support/
The VMware Web site also provides the latest product updates.
If you have comments about this documentation, submit your feedback to:
docfeedback@vmware.com
# Contents

vRealize Infrastructure Navigator User's Guide 5

1  vRealize Infrastructure Navigator Overview 7
   vRealize Infrastructure Navigator Functionality 7
   vRealize Infrastructure Navigator Target Users and Benefits 8
   Essential Concepts of vRealize Infrastructure Navigator 8
   vRealize Infrastructure Navigator Architecture 9
   vRealize Infrastructure Navigator Components 10

2  Mapping Overview 11
   Mapping Services 11
   Active Discovery 12
   Remapping Services 12
   Services Supported by vRealize Infrastructure Navigator 13

3  Getting Started with vRealize Infrastructure Navigator 15
   Log in to the vRealize Infrastructure Navigator Portal 15
   Enable or Disable the vRealize Infrastructure Navigator Plug-in 16
   vRealize Infrastructure Navigator Notification Messages 16

4  Application Visibility at Virtual Machine Level 19
   Understanding the Navigator Portlet 19
   Viewing Application Dependencies of a Virtual Machine 20
   Dependency Map and Table Messages 20
   Viewing the Dependency Map 21
   Viewing the Dependency Table 23
   Viewing Details of a Virtual Machine 24
   Defining an Unknown Service 26
   Discovery of External Entities 27
   Aging Process of Dependencies 27
   Understanding the Manual Application Feature 28
   Understanding Application Definition 30

5  Application Visibility at the vCenter Entity Level 33
   Understanding the Navigator Portlet 33
   Viewing Application Dependencies of a vCenter Entity 34
   Viewing the Inventory Table 34
   Filter Text in the Inventory Table 36
   Export Inventory Table 36
   Viewing Details of a vCenter Entity 36
6 Managing vRealize Hyperic Agents  37
   Configure vRealize Hyperic Action Profiles  38
   Edit vRealize Hyperic Action Profiles  38
   Delete vRealize Hyperic Action Profiles  38
   Install a vRealize Hyperic Agent on a Virtual Machine  39
   Refresh the Agent Status Summary  40
   Cancel Pending Tasks  40

Index  41
The VMware® vRealize™ Infrastructure Navigator™ User's Guide describes the tasks that you can perform using vRealize Infrastructure Navigator.

**Intended Audience**

This information is intended for virtual infrastructure administrators who are familiar with virtual machine technology and datacenter operations.
vRealize Infrastructure Navigator is an application awareness plug-in to the vCenter Server that provides continuous dependency mapping of applications.

vRealize Infrastructure Navigator offers application context to virtual infrastructure administrators for monitoring and managing virtual infrastructure inventory objects and actions. Administrators can use vRealize Infrastructure Navigator to understand the impact of the change on the virtual environment in their application infrastructure.

**NOTE** Plug-ins (also referred to as extensions) expand the capabilities of vCenter Server by adding features and functionality to the base product.

This chapter includes the following topics:

- “vRealize Infrastructure Navigator Functionality,” on page 7
- “vRealize Infrastructure Navigator Target Users and Benefits,” on page 8
- “Essential Concepts of vRealize Infrastructure Navigator,” on page 8
- “vRealize Infrastructure Navigator Architecture,” on page 9
- “vRealize Infrastructure Navigator Components,” on page 10

### vRealize Infrastructure Navigator Functionality

vRealize Infrastructure Navigator provides a centralized view of your application environment.

vRealize Infrastructure Navigator performs the following high-level functions:

- Maps virtual infrastructure resources such as virtual machines, Web servers, mail servers, database servers, application servers, cache servers, messaging servers, application management servers, and virtualization management servers.
- Displays relationships between virtual machines and external machines through services.
- Allows you to detect inconsistencies from the norm.
- Allows you to take advantage of integration with other VMware products such as vCenter Server, vCenter Site Recovery Manager, and vRealize Operations Manager.
- Allows you to define multi-tier application pattern and then discovers all of this pattern instances in the vCenter Server. You can then view these application instance maps.
- Allows you to create or define manual applications that in turn allow you to track a group of virtual machines.
vRealize Infrastructure Navigator Target Users and Benefits


vRealize Infrastructure Navigator creates a detailed model of the application environment and offers application context to its users.

vRealize Infrastructure Navigator helps virtual infrastructure administrators to accurately answer the following questions:

- Which application services are running on my virtual machines?
- What are the dependencies among application services running on different virtual machines?
- Where are the hidden optimization opportunities and how can I capitalize on them?
- How do certain application changes impact my environment?
- What are the risks involved in making changes in the virtual environment?
- How do the issues related to specific virtual machines impact application operation and how can I prevent or solve these issues?
- How does the integration with Site Recovery Manager and vRealize Operations Manager benefit users?

Essential Concepts of vRealize Infrastructure Navigator

Draft comment filepath: GUID-563F325F-5C9A-484E-8F65-45FADD661085.xml

Before working with vRealize Infrastructure Navigator, you must understand certain concepts related to vRealize Infrastructure Navigator.

Mapping

Mapping is a continuous process that creates and maintains a detailed model of your application environment.

Services

vRealize Infrastructure Navigator maps services that are installed and running in your virtual environment. Services include Web servers, mail servers, database servers, application servers, cache servers, messaging servers, application management servers, and virtualization management servers. To view the list of services supported by vRealize Infrastructure Navigator, see “Services Supported,” on page 13.

vCenter Entity

A vCenter entity is any entity that is part of the Hosts and Clusters inventory pane except a virtual machine. For example, a vCenter Server, an ESX host, a cluster, a datastore are all vCenter entities.

Change

A change is any modification in the virtual environment. For example, installing a new service is a change.

Incoming Dependency

When a virtual machine or a service running on it requires information from a service running on the selected virtual machine, a dependency exists between the two virtual machines. This dependency is known as an incoming dependency.

For example, if the selected virtual machine serves another virtual machine it is an incoming dependency.
Outgoing Dependency
When the selected virtual machine or a service running on it requires information from a service running on another virtual machine, a dependency exists between the two virtual machines. This dependency is known as an outgoing dependency.

For example, if the selected virtual machine is served by another virtual machine it is an outgoing dependency.

Manual Application
Allows you to mark a collection of virtual machines with an application name. For example, vRealize Configuration Manager can show the health of an application group rather than that of individual virtual machines.

Application Definition
An application definition is a rule or pattern by which a collection of connected virtual machines are identified as a deployed application instance. An application instance is a set of connected virtual machines that matches an application definition.

vRealize Infrastructure Navigator Architecture
Draft comment filepath: GUID-3CDAED81-FA3A-46DA-BC4D-5F137F42D2E1.xml

vRealize Infrastructure Navigator is a virtual appliance that you can deploy on the vCenter Server. A virtual appliance is a virtual machine image that contains software designed to run in a virtual machine.

With the components of vRealize Infrastructure Navigator, you can map services running in your virtual environment, examine the application discovery status, view and analyze the dependency map, and have a centralized view of the entire application environment.

The architecture illustrates various components of vRealize Infrastructure Navigator and their dependencies.

Figure 1-1. vRealize Infrastructure Navigator Architecture Diagram
A component is a software or software design with a well-defined interface. A component represents specific behavior of the system.

The following table lists and describes principal components of vRealize Infrastructure Navigator.

### Table 1-1. vRealize Infrastructure Navigator Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server in the vRealize Infrastructure Navigator virtual machine</td>
<td>The Server component reconciles the data from active discovery and transfers the data to the Database component.</td>
</tr>
</tbody>
</table>
| Database in the vRealize Infrastructure Navigator virtual machine | The Database component stores the data received from the Server component. The Database component also stores vRealize Infrastructure Navigator configurations.  
  Note: vRealize Infrastructure Navigator does not support data storage in an external database. |
| vRealize Infrastructure Navigator Plug-in in the vSphere Web Client | The vRealize Infrastructure Navigator Plug-in in the vSphere Web Client provides a graphical user interface that you use to view and analyze dependencies. |
| Inventory Service                              | Inventory service is a vSphere component to which vRealize Infrastructure Navigator exports its data.                                         |
Mapping Overview

Mapping is a continuous process that creates and maintains a detailed model of your application environment. The mapping process populates the vRealize Infrastructure Navigator database with the mapped items and identifies the relationships between them.

This chapter includes the following topics:
- “Mapping Services,” on page 11
- “Active Discovery,” on page 12
- “Remapping Services,” on page 12
- “Services Supported by vRealize Infrastructure Navigator,” on page 13

Mapping Services

vRealize Infrastructure Navigator maps services that are installed and running in your virtual environment. Services include Web servers, mail servers, database servers, application servers, cache servers, messaging servers, application management servers, and virtualization management servers. With the mapped data, you can visualize dependencies between services and virtual machines through application dependency mapping.

vRealize Infrastructure Navigator maps services running on virtual machines only if all the following conditions are satisfied:
- The virtual machine is powered on.
- The virtual machine can be accessed on the network.
- The vCenter Server credentials are of administrator level. For more information on credentials, see “Log in to the vRealize Infrastructure Navigator Portal,” on page 15.
- The virtual machine is running on a supported ESX version. For the supported ESX/ESXi versions list, see vRealize Infrastructure Navigator Installation and Configuration Guide.
- VMware Tools is installed and running on the virtual machine.
- The VMware Tools version is supported by vRealize Infrastructure Navigator.
The virtual machine has a supported guest operating system on it.

**NOTE** Microsoft Windows NT, Microsoft Windows 2000, Apple Macintosh, FreeBSD, SCO UnixWare 7, Sun Solaris 9, and Sun Solaris 10 (64-bit) are not supported by vRealize Infrastructure Navigator. Also, vRealize Infrastructure Navigator does not support virtual machines with guest operating system that were defined as Other (64-bit) and Other (32-bit) during creation.

If any one of these conditions fails, an Access failed error message appears in the Discovery Status field.

**Active Discovery**

In vRealize Infrastructure Navigator, active discovery is the method used to access the virtual machines. Active discovery is a multithreaded process that uses VMware Tools to access virtual machines.

vRealize Infrastructure Navigator starts the mapping process shortly after installation and if you provide valid administrator-level vCenter Server credentials. vRealize Infrastructure Navigator also supports some minimally privileged users who can start the discovery process. For more information on administrator-level credentials and minimally privileged user, see vRealize Infrastructure Navigator Installation and Configuration Guide. Mapping is continuous, unless you stop or disable vRealize Infrastructure Navigator.

Depending on the size of your environment, vRealize Infrastructure Navigator begins to populate the inventory table within an hour after you install the virtual appliance and start the discovery process. To view the complete information in the inventory table, dependency map, and dependency table, wait until you have collected at least one hour of data.

**NOTE** If the initial mapping process is incomplete, a This VM is pending application mapping message is displayed in place of the dependency map.

**Remapping Services**

After initial deployment, vRealize Infrastructure Navigator remaps services at a predefined time interval. Remapping ensures that the vRealize Infrastructure Navigator database is current and that it is synchronized with any changes in the virtual environment. The default frequency for remapping is one hour, and is displayed in the Successful Discovery field.

A change is any change in the virtual environment. For example, installing a service is a change. A change in the virtual environment takes effect only after remapping.

When the specified time interval has elapsed, vRealize Infrastructure Navigator discovers any changes. For example, if you install a service on a powered-on virtual machine, vRealize Infrastructure Navigator discovers this service within one hour, the default frequency for remapping.

Every five minutes, the vRealize Infrastructure Navigator server is synchronized with vCenter Server and the Discovery Status field is updated with the relevant change information. For example, consider a virtual machine with services installed and running on that it is powered off. Within five minutes of the power-off, vRealize Infrastructure Navigator discovers the change as the vCenter Server is refreshed and updates this in the Discovery Status field. Services that have been discovered on the virtual machine before the virtual machine was powered off remain on the virtual machine. The Successful Discovery field displays the time elapsed since vRealize Infrastructure Navigator last discovered the virtual machine when it was up and running.
vRealize Infrastructure Navigator maps services that are installed and running in your virtual environment.

## Services Supported

The following table lists and describes the services supported by vRealize Infrastructure Navigator along with the supported versions and service name as displayed in the UI.

<table>
<thead>
<tr>
<th>Category</th>
<th>Service Name</th>
<th>Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Server</td>
<td>Apache HTTP</td>
<td>2.0.X, 2.2.X</td>
<td>The Apache HTTP Server, also known as Apache, is an open-source Web server that provides HTTP services in sync with the current HTTP standards.</td>
</tr>
<tr>
<td></td>
<td>IIS</td>
<td>6.0.X</td>
<td>The Internet Information Services (IIS) is a flexible, secure, and easy-to-manage Web server developed by Microsoft for use with Microsoft Windows.</td>
</tr>
<tr>
<td></td>
<td>Nginx</td>
<td>0.7, 0.8</td>
<td>The nginx is a lightweight, HTTP, and reverse proxy server, as well as a mail proxy server that runs on UNIX, Linux, BSD variants, Mac OS X, Solaris, and Microsoft Windows.</td>
</tr>
<tr>
<td></td>
<td>SharePoint</td>
<td>2007, 2010</td>
<td>Microsoft SharePoint is a centralized web application platform and a replacement for multiple web applications. In the user interface, the single server installation of SharePoint appears as SharePoint Server, Web-server Front End appears as SharePoint Web Server, and Application appears as SharePoint Application Server.</td>
</tr>
<tr>
<td>Cache Server</td>
<td>GemFire</td>
<td>6.0, 6.5</td>
<td>VMware vFabric GemFire is a distributed data management platform that provides dynamic scalability, high performance, and data management capabilities of a database.</td>
</tr>
<tr>
<td>Mail Server</td>
<td>Exchange</td>
<td>2003, 2007, 2010</td>
<td>Microsoft Exchange Server is the server side of the messaging application used by enterprises.</td>
</tr>
<tr>
<td>Database Server</td>
<td>Oracle DB</td>
<td>11g</td>
<td>The Oracle Database is an Object-Relational Database Management System (ORDBMS).</td>
</tr>
<tr>
<td></td>
<td>MS-SQL DB</td>
<td>9.0, 10.0, 10.5</td>
<td>Microsoft SQL Server is a relational model database server.</td>
</tr>
<tr>
<td></td>
<td>DB2</td>
<td>9.5, 9.7</td>
<td>IBM DB2 Enterprise Server Edition is a relational model database server that runs on Unix, Linux, IBM i, z/OS and Windows servers.</td>
</tr>
<tr>
<td></td>
<td>MySQL DB</td>
<td>5.1, 5.5</td>
<td>MySQL is an open source Relational Database Management System (RDBMS) that runs as a server, providing multi-user access to a number of databases.</td>
</tr>
<tr>
<td></td>
<td>Sybase DB</td>
<td>15.0, 15.5</td>
<td>Adaptive Server Enterprise (ASE) is a Relational Database Management System (RDBMS) developed by Sybase Corporation.</td>
</tr>
<tr>
<td>Application Server</td>
<td>Apache Tomcat</td>
<td>6.0.X, 7.0</td>
<td>Apache Tomcat is an open-source software implementation of the Java Servlet and JavaServer Pages (JSP) technologies that provides an environment for Java code to run.</td>
</tr>
<tr>
<td></td>
<td>tc Server</td>
<td>2.0, 2.1.1</td>
<td>tc Server is a lightweight application server that provides an enterprise version of the Apache Tomcat application server optimized for cloud and virtual environments.</td>
</tr>
<tr>
<td></td>
<td>WebSphere</td>
<td>6.1, 7.0</td>
<td>WebSphere Application Server (WAS) is a software application server developed by IBM that builds, deploys, and manages SOA business applications and services.</td>
</tr>
<tr>
<td>Category</td>
<td>Service Name</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------</td>
<td>-----------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>WebLogic</td>
<td>WebLogic</td>
<td>10.3</td>
<td>Oracle WebLogic Server is an application server for building and deploying enterprise Java EE applications.</td>
</tr>
<tr>
<td>JBoss</td>
<td>JBoss</td>
<td>5.1, 6.0</td>
<td>JBoss Application Server is an open-source Java EE-based application server that provides Java EE 5 features along with extended enterprise services including clustering, caching, and persistence.</td>
</tr>
<tr>
<td>Virtualization</td>
<td>VMware vCenter</td>
<td>4.1, 5.0</td>
<td>VMware vCenter Server centrally manages VMware vSphere environments and improves IT administrators control over the virtual environment.</td>
</tr>
<tr>
<td>Management</td>
<td>VMware vCloud Director</td>
<td>1.1, 1.5</td>
<td>VMware vCloud Director delivers cloud infrastructure on-demand so that the end users can consume virtual resources with maximum agility. Consolidate datacenters and deploy workloads on shared infrastructure with built-in security and role-based access control. Migrate workloads between different clouds and integrate existing management systems using customer extensions, APIs, and open cross-cloud standards.</td>
</tr>
<tr>
<td>VMware vShield Manager</td>
<td>VMware vShield Manager</td>
<td>4.1, 5.0</td>
<td>VMware vShield Manager provides a central point of control for managing, deploying, reporting, logging and integrating vShield as well as third-party security services. Working in conjunction with vCenter Server, vShield Manager enables role based access control and separation of duties as part of a unified framework for managing virtualization security.</td>
</tr>
<tr>
<td>VMware vCenter</td>
<td>VMware vCenter</td>
<td>1.0.0, 1.0.1</td>
<td>vCenter Operations Standard is a tool for monitoring and managing the performance of your virtual environment. vCenter Operations Standard collects performance data from each object at every level of your virtual infrastructure, from individual virtual machines and disk drives to entire clusters and data centers. It stores and analyzes the data, and uses that analysis to provide real-time information about problems, or potential problems, anywhere in your enterprise.</td>
</tr>
<tr>
<td>Application</td>
<td>VMware View Server</td>
<td>4.6, 5.0</td>
<td>VMware View simplifies desktop and application management while increasing security and control. Delivers a personalized high fidelity experience for end-users across sessions and devices.</td>
</tr>
<tr>
<td>Management</td>
<td>RabbitMQ</td>
<td>1.8.1, 2.3.1</td>
<td>RabbitMQ is an open-source, enterprise messaging system that uses Advanced Message Queuing Protocol (AMQP). RabbitMQ provides robust messaging for applications.</td>
</tr>
<tr>
<td>Disaster Recovery</td>
<td>Site Recovery Manager</td>
<td>4.1, 5.0</td>
<td>Site Recovery Manager is used for disaster protection and site migration for all virtualized applications migration.</td>
</tr>
<tr>
<td>Server</td>
<td>Replication Server</td>
<td>1.0</td>
<td>Replication Server is a part of the host based replication solution for Site Recovery Manager.</td>
</tr>
<tr>
<td></td>
<td>Replication Management</td>
<td>1.0</td>
<td>Replication Management Server is a part of the host based replication solution for Site Recovery Manager.</td>
</tr>
</tbody>
</table>
You can use the vRealize Infrastructure Navigator portal to view and analyze the information collected during discovery.

This chapter includes the following topics:

- “Log in to the vRealize Infrastructure Navigator Portal,” on page 15
- “Enable or Disable the vRealize Infrastructure Navigator Plug-in,” on page 16
- “vRealize Infrastructure Navigator Notification Messages,” on page 16

Log in to the vRealize Infrastructure Navigator Portal

You can access the vRealize Infrastructure Navigator portal through the vSphere Web Client. vRealize Infrastructure Navigator is compatible only with the vSphere Web Client and does not support the .NET client.

Prerequisites

- Install and deploy the vRealize Infrastructure Navigator plug-in on a vCenter Server from which you want to administer vRealize Infrastructure Navigator. For more information, see vRealize Infrastructure Navigator Installation and Configuration Guide.

- You must have administrator privileges to use vRealize Infrastructure Navigator services. An administrator is a user who is assigned the administrator role on the vCenter Server or a user in a group that is assigned the administrators role on the vCenter Server. A user or group must be assigned with the administrator role on the root folder and all the child folders that are propagating from root folder. For more information on assigning privileges, see vRealize Infrastructure Navigator Installation and Configuration Guide.

Procedure

   
   By default the port is 9443, but this can be changed during vSphere Web Client installation.

2. Enter administrator credentials in the Username and Password fields.

3. Click Login to connect to the vCenter Server.

   If the vRealize Infrastructure Navigator plug-in is deployed correctly, you can see the Application Services tab under Manage tab at the vCenter entity level and the Application Dependencies tab under Manage tab at the virtual machine level.
If you have all the required privileges, services running in your virtual environment are displayed. Otherwise, the message *Infrastructure Navigator can only be used by vCenter Server administrators* is displayed.

**Note**  
*vRealize Infrastructure Navigator* displays the services running in your virtual environment within approximately one hour of you installing the virtual appliance. To view the complete information, wait until you have collected at least one hour of data. You can manually start or stop the discovery process, start or stop Site Recovery Manager integration, and uninstall the vRealize Infrastructure Navigator virtual appliance. For more information, see *vRealize Infrastructure Navigator Installation and Configuration Guide*.

---

**Enable or Disable the vRealize Infrastructure Navigator Plug-in**  
Draft comment filepath: GUID-08039706-3682-40EA-9D27-21F16A82D35C.xml

You can enable or disable the vRealize Infrastructure Navigator plug-in through the Plug-in Manager. After you install the vRealize Infrastructure Navigator plug-in, it is enabled by default.

**Prerequisites**

Install and deploy the vRealize Infrastructure Navigator plug-in on the vCenter Server from which you want to administer vRealize Infrastructure Navigator. For more information, see *vRealize Infrastructure Navigator Installation and Configuration Guide*.

**Procedure**

1. Log in to vSphere Web Client.
2. From the inventory menu, click *Administration*.
3. Click *Plug-in Management*. Enable or disable the plug-in, as required.

**Table 3-1. Enable or Disable the vRealize Infrastructure Navigator Plug-in**

<table>
<thead>
<tr>
<th>Option</th>
<th>Procedure</th>
</tr>
</thead>
</table>
| Disable Plug-in| Right-click *vRealize Infrastructure Navigator* and click *Yes* in the Disable Plug-in dialog box to disable the vRealize Infrastructure Navigator plug-in.  
**Note** Disabling the plug-in does not remove it from the client. You must uninstall the plug-in to remove it.  
When you disable the plug-in, the *Application Services* tab and the Navigator portlet in the *Summary* tab is not visible in the vSphere Web Client, but vRealize Infrastructure Navigator continues the mapping process in the background. |
| Enable Plug-in | Right-click *vRealize Infrastructure Navigator* and click *Yes* in the Enable Plug-in dialog box to disable the vRealize Infrastructure Navigator plug-in. |

---

**vRealize Infrastructure Navigator Notification Messages**

Draft comment filepath: GUID-21022BD0-9720-4945-9FD6-02F09522C424.xml

vRealize Infrastructure Navigator displays notification messages when any general system error or any credentials error. The notification messages appear in the *Application Dependencies* tab at the virtual machine level and at the *Application Services* tab at the vCenter Entity level. Notification messages related to Site Recovery Manager appears only when Site Recovery Manager Server is configured to work with vRealize Infrastructure Navigator.

In the event that there is more than one notification message, vRealize Infrastructure Navigator displays the most important notification according to the priorities described below.
### Table 3-2. Notification Messages

<table>
<thead>
<tr>
<th>Priority</th>
<th>Icon</th>
<th>Description</th>
<th>Error Summary</th>
<th>Error Description</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>🍁</td>
<td>Critical</td>
<td>Navigator server is not responding.</td>
<td>Unable to retrieve data from the Navigator server as it is not responding.</td>
<td>Refresh or restart the Navigator server.</td>
</tr>
<tr>
<td>2</td>
<td>🌡</td>
<td>Info</td>
<td>VM access is off.</td>
<td>Data might not be accurate because Navigator access to virtual machines is off.</td>
<td>Click the Turn on VM access link to start the discovery process.</td>
</tr>
<tr>
<td>3</td>
<td>🍁</td>
<td>Critical</td>
<td>Invalid or insufficient vCenter credentials.</td>
<td>Data might not be accurate as the vCenter credentials are invalid.</td>
<td>Click Set the vCenter credentials link to enter the vCenter Server credentials.</td>
</tr>
<tr>
<td>4</td>
<td>🚨</td>
<td>Warning</td>
<td>Site Recovery Manager Server integration is stopped.</td>
<td>Site Recovery Manager Server integration is stopped due to invalid credentials.</td>
<td>Click Set the Site Recovery Manager credentials to enter the Site Recovery Manager Server credentials.</td>
</tr>
</tbody>
</table>

If there is an error in retrieving data from Site Recovery Manager Server, the `Error in retrieving data from the SRM server` message appears.

If there is an error in retrieving data from the vRealize Infrastructure Navigator server, the `Error in retrieving data from the Infrastructure Navigator server` message appears.

At vCenter Entity level, if there is an error in retrieving data from the vRealize Infrastructure Navigator server there is no popup message, but `Error in retrieving data from the Infrastructure Navigator server` message appears in the **Application Services** tab and the portlet is empty.
You can view the application dependency of a virtual machine to help you to manage your vSphere inventory. The inventory appears in the left pane and displays all the virtual machines managed by the vCenter Server.

You view the services that vRealize Infrastructure Navigator provides on a virtual machine by selecting the virtual machine from the inventory. The selected virtual machine name is highlighted in the inventory and its details appear in the Navigator portlet on the Summary tab.

This chapter includes the following topics:

- “Understanding the Navigator Portlet,” on page 19
- “Viewing Application Dependencies of a Virtual Machine,” on page 20
- “Dependency Map and Table Messages,” on page 20
- “Viewing the Dependency Map,” on page 21
- “Viewing the Dependency Table,” on page 23
- “Viewing Details of a Virtual Machine,” on page 24
- “Defining an Unknown Service,” on page 26
- “Discovery of External Entities,” on page 27
- “Aging Process of Dependencies,” on page 27
- “Understanding the Manual Application Feature,” on page 28
- “Understanding Application Definition,” on page 30

Understanding the Navigator Portlet

The Navigator portlet on the Summary tab gives you a summarized result of the mapping process that has been performed on the selected virtual machine.

The following table lists and describes the fields in the Navigator portlet.
Table 4-1. Navigator Portlet

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery Status</td>
<td>Displays the discovery status of the virtual machine.</td>
</tr>
<tr>
<td></td>
<td>■ Normal: Indicates absence of any error. For more information, see “Mapping Services,” on page 11.</td>
</tr>
<tr>
<td></td>
<td>■ Access failed: Indicates that the mapping process failed on the selected virtual machine and displays an error message describing the reason for failure.</td>
</tr>
<tr>
<td></td>
<td>The field displays a green icon for a Normal status and a gray icon for a Access failed status.</td>
</tr>
<tr>
<td>Successful</td>
<td>Displays the time elapsed since the last successful discovery of the virtual machine.</td>
</tr>
<tr>
<td>Discovery</td>
<td>Displays a comma-separated list of services installed and running on the selected virtual machine.</td>
</tr>
<tr>
<td></td>
<td>In case of multiple services with the same version or multiple services without any version, the service name is displayed once with number of instances in parentheses.</td>
</tr>
<tr>
<td>Dependencies</td>
<td>Displays the total number of dependencies including incoming and outgoing dependencies.</td>
</tr>
<tr>
<td></td>
<td>Click Dependencies to view the number of incoming and outgoing dependencies.</td>
</tr>
<tr>
<td>Incoming</td>
<td>When a virtual machine, or a service running on it, requires information from a service running on the selected virtual machine, a dependency exists between the two virtual machines. This dependency is known as an incoming dependency.</td>
</tr>
<tr>
<td></td>
<td>For example, if the selected virtual machine serves another virtual machine it is an incoming dependency.</td>
</tr>
<tr>
<td>Outgoing</td>
<td>When the selected virtual machine, or a service running on it, requires information from a service running on another virtual machine, a dependency exists between the two virtual machines. This dependency is known as an outgoing dependency.</td>
</tr>
<tr>
<td></td>
<td>For example, if the selected virtual machine is served by another virtual machine it is an outgoing dependency.</td>
</tr>
</tbody>
</table>

To view the dependency map of the selected virtual machine, click Show dependencies at the bottom of the Navigator portlet or click the Application Dependencies tab under Manage tab from the toolbar.

Viewing Application Dependencies of a Virtual Machine

By default the Application Dependencies tab displays the first level application dependencies of a selected virtual machine in map and tabular formats. The information panel displays additional information about the machine. You can select the way that you see the application dependencies in a map or table by using the Application Dependencies drop-down menu.

The Application Dependencies tab also shows second-level application dependencies of all the virtual machines except the selected virtual machine in a map. For more information, see “Viewing Second-Level Application Dependencies,” on page 22.

Dependency Map and Table Messages

vRealize Infrastructure Navigator displays messages in the dependency map and dependency table depending on the discovery status of a virtual machine and the information-retrieval action that is performed on the virtual machine.

You might see the following messages while using vRealize Infrastructure Navigator.
### Table 4-2. Dependency Map and Table Messages

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading</td>
<td>The dependency map or table is being loaded with relevant data.</td>
</tr>
<tr>
<td>Access failed. VMware Tools is not installed</td>
<td>Discovery failed because VMware tools is not installed on the selected virtual machine.</td>
</tr>
<tr>
<td>Access failed. VM is powered off or suspended</td>
<td>The selected virtual machine is powered off or suspended.</td>
</tr>
<tr>
<td>Retrieving data from SRM</td>
<td>Infrastructure Navigator is retrieving data from Site Recovery Manager</td>
</tr>
<tr>
<td>SRM integration is stopped</td>
<td>The integration of the Site Recovery Manager has stopped.</td>
</tr>
<tr>
<td>This VM is pending application mapping</td>
<td>The initial mapping process is incomplete.</td>
</tr>
<tr>
<td>Access failed. The disk is full</td>
<td>vRealize Infrastructure Navigator cannot perform discovery on the targeted virtual machine because the disk of targeted virtual disk is full.</td>
</tr>
</tbody>
</table>

### Viewing the Dependency Map


The dependency map is a map of relationships that displays the services installed and running on a virtual machine. The dependency map displays all virtual machines connected to the selected virtual machine by incoming or outgoing dependencies. The name of the selected virtual machine appears at the top of the dependency map. The dependency map also displays the total number of unknown services running on that particular virtual machine that have connections. If you have integrated Site Recovery Manager with vRealize Infrastructure Navigator, the Site Recovery Manager Protection Groups and Site Recovery Manager Recovery Plans of the selected virtual machine are also displayed in the dependency map. If a virtual machine is part of a vApp, the vApp name is also displayed in the dependency map.

The following table lists and describes the icons that are used in the vRealize Infrastructure Navigator dependency map.

### Table 4-3. Dependency Map Icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Icon]</td>
<td>Represents a virtual machine. The name of the virtual machine appears next to the icon. If you select a virtual machine it is highlighted in dark blue.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Represents services running on the selected virtual machine. The names of the services appear below the virtual machine that you have selected.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Indicates that the specific virtual machine is protected by Site Recovery Manager. The information related to Site Recovery Manager also appears, assuming that Site Recovery Manager integration is enabled.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Represents a vApp. If a virtual machine is part of a vApp, the vApp name also appears.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Indicates a critical alarm for a virtual machine. The icon appears next to the virtual machine name. The total number of critical alarms is listed in the tool tip. If you click the icon, the Issues tab on the Monitor tab for the specific virtual machine opens.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Indicates a warning alarm for a virtual machine. The icon appears next to the virtual machine name. The total number of warning alarms is listed in the tool tip. If you click the icon, the Issues tab on the Monitor tab for the specific virtual machine opens.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Click the icon to view the second level incoming and outgoing dependencies. This button is present in all the virtual machines except the selected virtual machine and external entities. The total number of incoming or outgoing dependencies is displayed on the button. For example, if there are 4 incoming dependencies for a specific virtual machine other than the selected VM, the number 4 appears on the button. For more information, see “Viewing Second-Level Application Dependencies,” on page 22.</td>
</tr>
</tbody>
</table>
In the case of an outgoing connection from a selected virtual machine (VM1) to a second virtual machine (VM2) that is part of the virtual environment monitored by vRealize Infrastructure Navigator, VM2 appears in the dependency map as an outgoing dependency. In the case of an incoming connection from a virtual machine (VM1) to a selected virtual machine (VM2) that is part of the virtual environment monitored by vRealize Infrastructure Navigator, VM1 appears in the dependency map as an incoming dependency.

The arrows in a dependency map indicates whether a dependency is outgoing or incoming. An outgoing arrow from a selected virtual machine denotes an outgoing dependency and an incoming arrow to the selected virtual machine denotes incoming dependency.

In the dependency map, you can double-click another virtual machine (VM3) to navigate to that virtual machine and view its dependency map. The navigation is successful when the following changes occur:

- The other virtual machine (VM3) is highlighted in dark blue.
- The other virtual machine (VM3) is highlighted in the left inventory pane.
- The information panel displays details of the other virtual machine (VM3).

**NOTE** If you try to open a dependency map that has more than 70 direct connections, the dependency map does not load. The *Too many connections. Redirecting to table view* message is displayed. After three seconds, you are redirected to the table view.

vRealize Infrastructure Navigator discovers and displays machines, services, and dependencies that are external to the current vCenter Server. For more information, see “Discovery of External Entities,” on page 27.

### Viewing Second-Level Application Dependencies

You can view a second level of application dependencies that are dependent on or serve a specific virtual machine.

Beneath each virtual machine in a map, other than the selected virtual machine, are two buttons, represented by ![button](image), that you can use to view second-level application dependencies. Clicking the button on the left shows incoming application dependencies. Clicking the button on the right shows outgoing application dependencies. The total number of dependencies is displayed on the button. If there are no dependencies to display, the button is disabled and a tool tip shows a *No more dependencies to display* message. If you click one of these buttons, it displays the next level of application dependencies that is dependent or serves the virtual machine and the button is grayed out.

The first level application dependency is shown in dark blue color and the second-level application dependencies are shown in dark green color.

You can remove the newly discovered virtual machines and its connections that have been discovered by this functionality by clicking the ![icon](image) icon on the upper right corner of the virtual machine.

If you remove a second-level dependent virtual machine, the count on the button of the original virtual machine is increased by one. You can retrieve all the second-level dependent virtual machines by clicking on the button of the original virtual machine again.

**NOTE** If a virtual machine has more than 70 incoming or outgoing dependencies, the ![icon](image) is disabled and at the tool tip *Too many connections. Double-click the virtual machine to see its first level dependencies in table view* message is displayed.
Understanding the Dependency Map Toolbar
Draft comment filepath: GUID-CE742D08-DDFB-4AF3-8594-C6D05184DE6B.xml

You can use the control buttons on the Dependency Map toolbar to manage the dependency map.

The toolbar appears above the dependency map.

### Table 4-4. Dependency Map Control Buttons

<table>
<thead>
<tr>
<th>Control Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Create Application" /></td>
<td>Click to create manual application. For more information, see “Create an Application Manually,” on page 28.</td>
</tr>
<tr>
<td><img src="image" alt="Rename Application" /></td>
<td>Click to rename an application. For more information, see “Rename an Application Manually,” on page 28.</td>
</tr>
<tr>
<td><img src="image" alt="Add Application Members" /></td>
<td>Click to add application members, see “Add Virtual Machines to an Application,” on page 29.</td>
</tr>
<tr>
<td><img src="image" alt="Remove VMs from Application" /></td>
<td>Click to remove the virtual machines from a selected application. For more information, see “Remove Virtual Machines from the Dependency Map of an Application,” on page 29.</td>
</tr>
<tr>
<td><img src="image" alt="Zoom In" /></td>
<td>Click to magnify areas of the dependency map. Click the icon again to close the magnifier.</td>
</tr>
<tr>
<td><img src="image" alt="Overview Image" /></td>
<td>Click to open an overview image to the left of the dependency map. You can click the overview image to navigate within the dependency map. Click the icon again to close the overview image.</td>
</tr>
<tr>
<td><img src="image" alt="Fit Content" /></td>
<td>Click the <strong>Fit content</strong> icon to adjust the magnification of the dependency map so that it fits exactly in the rectangular map pane.</td>
</tr>
<tr>
<td><img src="image" alt="Zoom In" /></td>
<td>Click the <strong>Zoom in</strong> icon to magnify the dependency map by preset levels. You can use your mouse wheel to change the size of the dependency map. Place the cursor on the dependency map and roll the mouse wheel forward to zoom in on the map.</td>
</tr>
<tr>
<td><img src="image" alt="Zoom Out" /></td>
<td>Click the <strong>Zoom out</strong> icon to shrink the dependency map by preset levels. You can use your mouse wheel to change the size of the dependency map. Place the cursor on the dependency map and roll the mouse wheel backward to zoom out.</td>
</tr>
<tr>
<td><img src="image" alt="Export" /></td>
<td>Click to export the displayed dependency map as an image.</td>
</tr>
</tbody>
</table>

You can move the dependency map in any direction by left-clicking the map and dragging your mouse in the required direction without releasing the mouse button.

The toolbar also has two drop-down menus. You can select to view the application dependencies in either Map View or Table View by using the **Application Dependencies** drop-down menu. By default, the **Display map of** drop-down menu displays the first level application dependencies dependency map.

### Viewing the Dependency Table
Draft comment filepath: GUID-6FEE98F6-4233-4DA6-986C-CD1547D5FA3F.xml

The dependency table is the tabular form of the dependency map. In addition to specifying the virtual machine name and services installed, it provides the virtual machine state, virtual machine status, discovery status, and the time elapsed since last successful discovery of the selected virtual machine.

You view a dependency table by selecting **Application Dependencies > Table View** on the **Application Dependencies** tab. The tables in the view give you details about the first level of application dependency for the selected virtual machine, together with an incoming dependency table and an outgoing dependency table.
The three tables are sub-tables of the inventory table.

- The incoming dependencies table displays details of all virtual machines that depend on the selected virtual machine.
- The virtual machine name table displays the details of the selected virtual machine.
- The outgoing dependencies table displays the details of all virtual machines on which the selected virtual machine depends.

If a virtual machine has no incoming dependencies, a No incoming dependencies message is displayed in place of the incoming dependencies table. If the virtual machine has no outgoing dependencies, a No outgoing dependencies message is displayed in place of the outgoing dependencies table.

### Table 4.5. Dependency Table

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the virtual machine name as displayed in the vCenter inventory panel.</td>
</tr>
</tbody>
</table>
| Services      | Displays a comma-separated list of mapped services along with their versions that are running on the selected virtual machine.  
                | In case of multiple services with the same version or multiple services without any version, the service name is displayed once with the number of instances in parenthesis. |
| Discovery Status | Displays the discovery status of the virtual machine.  
                | - Normal. Indicates absence of any error. For more information, see “Mapping Services,” on page 11.  
                | - Access failed. Indicates that the mapping process failed on the selected virtual machine, and displays an error message stating the reason for failure.  
                | The field also displays a green icon for a Normal status and a gray icon for Access failed status. |
| Successful Discovery | Displays the time elapsed since the last successful discovery of the virtual machine. |
| Protection Group | Displays the Site Recovery Manager protection group of the virtual machine.  
                | A blank field indicates that the virtual machine does not belong to any Site Recovery Manager protection group. |
| Recovery Plans | Displays a comma-separated list of Site Recovery Manager recovery plans for the virtual machine.  
                | A blank field indicates that the virtual machine does not belong to any Site Recovery Manager recovery plan. |

The Protection Group and Recovery Plans column appears only if you have integrated vRealize Infrastructure Navigator with Site Recovery Manager. For information about Site Recovery Manager integration, see vRealize Infrastructure Navigator Installation and Configuration Guide.

### Viewing Details of a Virtual Machine

The information panel at the bottom of the dependency table or dependency map displays details of a selected virtual machine that are not displayed in the dependency map or the dependency table.

The information panel appears very small. You can drag the link above the information panel to view the complete information.

The following table lists and describes the fields in the General tab of the information panel.

### Table 4.6. General Tab

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guest OS</td>
<td>The name of the guest operating system installed on the selected virtual machine.</td>
</tr>
<tr>
<td>DNS name</td>
<td>The Domain Name System (DNS) name of the selected virtual machine.</td>
</tr>
<tr>
<td>IP Addresses</td>
<td>A comma-separated list of IP addresses of the selected virtual machine.</td>
</tr>
</tbody>
</table>
Table 4-6. General Tab (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host</td>
<td>The name of the ESX host on which the selected virtual machine resides.</td>
</tr>
<tr>
<td>Cluster</td>
<td>The name of the cluster assigned to the selected virtual machine.</td>
</tr>
<tr>
<td>Storage</td>
<td>The name of the storage assigned to the selected virtual machine.</td>
</tr>
<tr>
<td>Networks</td>
<td>The name of the network assigned to the selected virtual machine.</td>
</tr>
<tr>
<td>VMware Tools</td>
<td>The status of the VMware Tools installed on the selected virtual machine.</td>
</tr>
<tr>
<td>vApp Name</td>
<td>The name of the vApp to which the selected virtual machine belongs.</td>
</tr>
</tbody>
</table>

By default, the Services tab shows all the known services, and unknown services with at least one incoming dependency. To view unknown services that do not have any incoming dependency, select the checkbox above the table.

Table 4-7. Services Tab

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Displays the icons of supported service and unsupported service.</td>
</tr>
<tr>
<td>Action</td>
<td>Use the icon to create user-defined services from unknown services. For more information, see “Create User-Defined Service,” on page 26.</td>
</tr>
<tr>
<td>Name</td>
<td>Displays the name of the service, if it is a supported service. If the service is an unknown service, the name displayed is Unknown Service.</td>
</tr>
<tr>
<td>Listening Ports</td>
<td>Displays a comma-separated list of listening port numbers for the selected virtual machine.</td>
</tr>
<tr>
<td>Category</td>
<td>Displays the name of the category to which the supported service belongs. If the service is an unknown service, the category name displayed is Unknown.</td>
</tr>
<tr>
<td>Process Using Port</td>
<td>Displays the name of the process that runs on the listening port of the selected virtual machine.</td>
</tr>
<tr>
<td># Incoming Dependencies</td>
<td>Displays the number of incoming dependencies to the selected virtual machine.</td>
</tr>
</tbody>
</table>
Defining an Unknown Service
Draft comment filepath: GUID-0E51C9D5-3C82-4366-BD24-7B5BA6D2DE3B.xml

Services that are not part of the vRealize Infrastructure Navigator knowledge base are categorized as unknown services. You can define an unknown service as a user-defined service and enlarge the knowledge base.

Create User-Defined Service
Draft comment filepath: GUID-BC0ECD14-EBC4-4B2A-B4FC-1E71703736E0.xml

You can create user-defined services from unknown services. If you create a user-defined service, all the virtual machines that run the service on the defined port number and process name display the service.

Procedure
1. In the Services tab of the information panel, click the Add a service definition icon.
   The Create User Defined Service Definition window appears. If multiple ports or multiple processes are related to the unknown service, you can select them from the drop-down menu.
2. Select either the Port or Process check boxes, or both.
   If you select both port and process name to define a service, the selection takes precedence over a service that you have defined using only the port or process name.
3. Specify a name for the unknown service.
4. Select the category from the Category menu.
5. Click OK.

The user-defined service replaces the unknown service in the information panel and on the Summary tab at the vCenter Entity level.

Note On external entities, the definition of unknown services includes port number, name, and category. If you create a user-defined service for an internal virtual machine and include the process name, this definition does not apply to the external virtual machines.

Edit User-Defined Service
Draft comment filepath: GUID-C479121C-B119-41ED-B92C-1E7F47569D09.xml

You can edit user defined services. The edit definition results in changes to all services that match this definition.

You can only edit a single definition at a time. To edit additional definitions, repeat the procedure.

Procedure
1. In the Services tab of the information panel, click the Edit the service definition icon.
2. Select the definition that you are editing from the drop-down menu.
   The Port and Process information related to the selected definition is populated by default and the current definition name is displayed.
3. Type a new name for the definition.
4. (Optional) To change the category, select a new category from the Category menu.
5. Click OK.
The new definition name is applied to the user-defined service.

**Delete User-Defined Service**

Draft comment filepath: GUID-E83FC5BD-F4D5-41F9-B3F1-41184CFFB7E2.xml

You can delete a user-defined service definition that you have created. Deleting the definition affects all services that match the definition.

**Procedure**

1. In the **Services** tab of the information panel, click the **Delete the service definition** icon.
   The Delete User Defined Service Definition window appears.
2. From the drop-down menu, select the definition to delete.
3. Click **OK**.

   The definition is removed from the vRealize Infrastructure Navigator database.

**Discovery of External Entities**

Draft comment filepath: GUID-9C0A14FD-B8B3-41DD-8B5D-4F6B4EEBB13C.xml

vRealize Infrastructure Navigator discovers and displays machines, services, and dependencies that are external to the current vCenter Server. If an external machine has more than one IP address, each address is discovered as a separate external machine. If multiple external machines have the same IP address, they are discovered as a single external machine.

An external virtual machine appears in a gray color in the dependency map and is represented by its DNS name. If a DNS name does not exist, the dependency map displays the IP address of the external virtual machine.

If you select a machine that is external to your current vCenter Server environment, the information panel displays the details of the selected machine below the dependency table and dependency map.

The **Service** tab displays the services running on the external virtual machine. The **General** tab displays the message

**This is an external IP address. It can be either a physical machine or a virtual machine, which is not managed by the vCenter Server that Navigator is deployed on.**

**Aging Process of Dependencies**

Draft comment filepath: GUID-C0346961-7A66-4017-9170-BA0BEEE6D524.xml

To keep the database, portlets, and the map accurate and updated with relevant connections, vRealize Infrastructure Navigator removes infrequently used dependencies.

To ensure that only the relevant dependencies between virtual machines and between services are visible, vRealize Infrastructure Navigator removes infrequently used dependencies after three days of inactivity. The inactivity period is non-configurable.

For example, a dependency between a source and a target where the source is a virtual machine and the target is a service, a virtual machine, or an external entity is removed if the dependency has not been discovered in the past inactivity period. vRealize Infrastructure Navigator tracks the last time the dependency was discovered. If discovery is turned off and later turned back on, vRealize Infrastructure Navigator resets the countdown of the inactivity period.
Understanding the Manual Application Feature

You can use the manual application feature to mark a collection of virtual machines with an application name. For example, vRealize Operations Manager can show the health of an application group rather than that of individual virtual machines.

The manual application feature's requirements are as follows.

- A manual application must be unique, meaning that two manual applications cannot have the same name.
- The name of the manual application is limited to 128 characters.

The manual application feature's functionalities are as follows.

- You can use the dependency map to create a manual application.
- You can create manual applications with virtual machines that are not connected.
- Manual applications are listed in the Display map of drop-down menu.
- If a selected virtual machine does not belong to any application, the Display map of drop-down menu shows only the first level dependencies of that virtual machine.
- If you create a manual application using only external entities, you cannot view the created manual application.

Create an Application Manually

You can create an application manually to mark a collection of virtual machines with an application name.

You can filter and show virtual machines that belong to a specific application.

**Procedure**

1. At virtual machine level, expand the dependency map to view all available dependencies.
2. Select the virtual machines for which you are creating an application.
3. Click the Create application icon.
4. Specify a name for the application. The name must be unique to the vCenter Server you are currently working on.
5. Click OK.

The application is created. You can view the application by selecting one of its virtual machines and opening its dependency map. The application appears in the Display map of drop-down menu.

Rename an Application Manually

You can rename an application that you have created.

**Procedure**

1. At virtual machine level, from the Display map of drop-down menu, select the manually created application that you are renaming.
2. Click the Rename application icon.
3 Specify a new name in the **Name** text box.
   The name must be unique to the vCenter Server that you are currently working on.

4 Click **OK**.

The new name is applied to the application.

### Add Virtual Machines to an Application

Draft comment filepath: GUID-0A2910CF-CBE1-40BC-9503-FB58163042F6.xml

You can add virtual machines to an application that you have created.

**Procedure**

1 Open the application map to which you are adding the virtual machines.

2 Expand all the incoming or outgoing dependencies of the application map.

3 Select the virtual machines to add.

4 Click the **Add selected application members** icon.

The updated application map appears.

### Remove Virtual Machines from the Dependency Map of an Application

Draft comment filepath: GUID-3A17A56C-5044-4FE8-9B1E-EF48DC646F17.xml

You can remove the virtual machines from the dependency map of a selected application. When you remove the virtual machines from an application, the changes appear in the application map.

**Procedure**

1 Open the application map from which you are removing a virtual machine.

2 Select the machines that you are removing.

3 Click the icon.

   Depending on the virtual machines that you select for removal, three different types of messages are displayed.

   - If you try to remove a virtual machine other than the spotlighted virtual machine, then this message is displayed.
     
     Removing the virtual machine from the application will change the displayed application map. Do you want to continue?

   - If you try to remove the spotlighted virtual machine or if spotlighted virtual machine is present among the virtual machines that you select for removal, then this message is displayed.
     
     By removing the spotlighted virtual machine from the application, you will lose the focus on this application. The first-level dependencies will be displayed. Do you want to continue?

   - If you try to remove all the virtual machines from the application, then this message is displayed.
     
     Removing all the virtual machines from manual application will make this application undiscoverable by the Infrastructure Navigator. The first-level dependencies map will be displayed. Do you want to continue?
An application definition is a rule or pattern by which a collection of connected virtual machines are identified as a deployed application instance. An application instance is a set of connected virtual machines that matches an application definition.

During the discovery process, the virtual machines, the services running on the virtual machines, and the components deployed on the virtual machines are compared to application definitions. Each set of connected virtual machines that matches an application definition is considered an application instance.

If you have Microsoft Exchange installed, each Exchange role is a service for which you can create application definitions. When you are creating a rule and you select Mail Server as the server category, each of the Exchange roles are listed under Service Name.

The Manage tab of the vRealize Infrastructure Navigator virtual appliance displays the application definitions management table. The application definitions management table shows all the application definitions that exist under a vCenter Server, and all the Exchange roles.

On the Services tab in the information panel at the bottom of the screen, you can view the Microsoft Exchange name and version number of a role, and a list of the ports on which listening occurs. You can also view this information in the vRealize Infrastructure Navigator portlet on the Summary tab.

You can create application definitions by which a collection of connected virtual machines are identified as a deployed application instance. The application definitions management table shows all the application definitions that exist under a vCenter Server.

Procedure

1. Log in to the vSphere Web Client.
2. From the inventory menu, select Infrastructure Navigator.
   The vRealize Infrastructure Navigator home page appears.
3. Click the Manage tab.
4. From the vCenter Server drop-down menu, select the vCenter Server where you want to create the application definition.
5. Click the Create Automatic Application Definition icon.
6. Type a name and description for the application definition, and click Next.
   The name must be unique to the vCenter Server that you are currently working on. The length of the name is limited to 128 alphanumeric characters including spaces. The description is not mandatory, but is helpful as it can increase the efficiency in future tasks. The length of the description must be less than or equal to 2048 alphanumeric characters including spaces.
7. To set the rule, select the service category from the Service Category drop-down menu and service name from the Service Name drop-down menu.
   You must select a service category, a service name, or both before proceeding. You can set more than one rule by clicking the Add icon. The Clustered check box, which groups all the occurrences of this service into a single application instance is selected by default.
8 Click Next.

The Ready to complete screen displays a summary of your settings.

9 Click Finish.

The created application definition is listed in the application definitions management table. Any valid application definition generates application instances.

**Edit Application Definition**

Draft comment filepath: GUID-467C54E2-6FE6-4FFC-BD9B-DCFF262E5A9D.xml

You can edit an existing application definition that you have created. An existing and valid application definition might become invalid if one of the user-defined services used originally in the application definition does not exist anymore or has been renamed.

**Procedure**

1 Log in to the vSphere Web Client.

2 From the inventory menu, select Infrastructure Navigator.

The vRealize Infrastructure Navigator home page appears.

3 Click the Manage tab.

4 From the vCenter Server drop-down menu, select the vCenter Server from which you want to edit an application definition.

5 Select the application definition that you want to edit and click the Edit Automatic Application Definition icon .

6 To edit the name and description, type a new name and description in the Name and Description text box and click Next.

The name must be unique to the vCenter Server that you are currently working on. The length of the name is limited to 128 alphanumeric characters including spaces. The description is not mandatory, but is helpful as it can increase the efficiency in future tasks. The length of the description must be less than or equal to 2048 alphanumeric characters including spaces.

7 To add, delete, or change the rules, edit or select the new service category or service name from the Service Category or Service Name drop-down menu.

8 Click Next.

The Ready to complete screen displays a summary of your new settings.

9 Click Finish.

The new definition is applied to the application definition.

**Delete Application Definition**

Draft comment filepath: GUID-80DB2D24-F66A-4243-B737-F876C042020B.xml

You can delete an application definition. If you delete an application definition you lose all the discovered application instances.

**Procedure**

1 Log in to the vSphere Web Client.

2 From the inventory menu, select Infrastructure Navigator.

The vRealize Infrastructure Navigator home page appears.
Click the Manage tab.

From the vCenter Server drop-down menu, select the vCenter Server from which you want to delete an application definition.

Select the application definition that you want to delete and click the Delete Automatic Application Definition icon.

Click Yes.

The application definition is deleted from the application definitions management table.

**NOTE** Deleting multiple application definitions together is not supported.

---

**Export Application Definition List**

You can export the application definitions that are listed in the application definitions management table as a CSV file. You can select the rows and columns that you want to export or can export the entire table.

**Prerequisites**

You must define at least one application definition before you export an application definition list.

**Procedure**

1. Log in to the vSphere Web Client.
2. From the inventory menu, select **Infrastructure Navigator**.

   The vRealize Infrastructure Navigator home page appears.
3. Click the Manage tab.
4. From the vCenter Server drop-down menu, select the vCenter Server for which you want to generate the CSV file.
5. Click the Export icon at the bottom right-hand corner of the screen.

   If no application definition is defined, this icon is disabled.
6. (Optional) In the Rows pane, select the rows that you want to export.

   - Select the All rows check box if you want to export all the rows.
   - Select the Selected rows only check box if you want to export the selected rows. You can use Ctrl +click to select multiple rows.
7. (Optional) Select the columns that you want to export from the Columns pane.
8. Click Generate CSV Report.
9. Click Save and select the location where you want to save the CSV file.
You can view the services installed and running on a vCenter entity to manage your vSphere inventory. The inventory appears in the left pane and displays all the vCenter entities managed by the vCenter Server.

You can view the services installed and running on a vCenter entity, by selecting a vCenter entity from the inventory. The selected vCenter entity name is highlighted in the inventory and its details appear in the Navigator portlet in the Summary tab.

This chapter includes the following topics:

- “Understanding the Navigator Portlet,” on page 33
- “Viewing Application Dependencies of a vCenter Entity,” on page 34
- “Viewing the Inventory Table,” on page 34
- “Filter Text in the Inventory Table,” on page 36
- “Export Inventory Table,” on page 36
- “Viewing Details of a vCenter Entity,” on page 36

### Understanding the Navigator Portlet

The Navigator portlet on the Summary tab provides a summarized result of the mapping process carried out on a selected vCenter entity.

The following table describes the fields in the Navigator portlet.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known Application Services</td>
<td>Displays the total number of services running on the selected vCenter entity. Services include Web servers, mail servers, database servers, application servers, cache servers, messaging servers, application management servers, and virtualization management servers. You can click Known Application Services to view the number of Web servers, mail servers, database servers, application servers, cache servers, messaging servers, application management servers, and virtualization management servers discovered by vRealize Infrastructure Navigator.</td>
</tr>
<tr>
<td>Application Server</td>
<td>Displays the number of application servers running on the selected vCenter entity. Supported application servers include Apache Tomcat, tc Server, WebSphere, WebLogic, and JBoss.</td>
</tr>
<tr>
<td>Web Server</td>
<td>Displays the number of Web servers running on the selected vCenter entity. Supported Web servers include Apache HTTP, IIS, SharePoint, and Nginx.</td>
</tr>
<tr>
<td>Messaging Server</td>
<td>Displays the number of messaging servers running on the selected vCenter entity. RabbitMQ is the only supported messaging server.</td>
</tr>
</tbody>
</table>
Table 5-1. Navigator Portlet (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mail Server</td>
<td>Displays the number of mail servers running on the selected vCenter entity. Microsoft Exchange is the only supported mail server.</td>
</tr>
<tr>
<td>Database Server</td>
<td>Displays the number of database servers running on the selected vCenter entity. Supported database servers include Oracle DB, MS-SQL DB, DB2, MySQL DB, and Sybase DB.</td>
</tr>
<tr>
<td>Cache Server</td>
<td>Displays the number of cache servers running on the selected vCenter entity. GemFire is the only supported cache server.</td>
</tr>
<tr>
<td>Application Management</td>
<td>Displays the number of application management servers running on the selected vCenter entity. VMware View Server is the only supported application management server.</td>
</tr>
<tr>
<td>Virtualization Management</td>
<td>Displays the number of virtualization management servers running on the selected vCenter entity. Supported virtualization management servers include VMware vCenter, VMware vCloud Director, and VMware vShield Manager.</td>
</tr>
<tr>
<td>Disaster Recovery Server</td>
<td>Displays the number of disaster recovery servers running on the selected vCenter entity. Supported disaster recovery servers include Site Recovery Manager, Replication Server, and Replication Management Server.</td>
</tr>
<tr>
<td>Authentication Server</td>
<td>Active Directory provides a central location for network administration and security. Server computers that run Active Directory are called domain controllers. An Active Directory domain authenticates and authorizes all users and computers in a Windows domain type network. For example, when a user logs into a computer that is part of a Windows domain, Active Directory checks the submitted password and determines whether the user is an administrator or a normal user.</td>
</tr>
</tbody>
</table>

To view the inventory table of a selected vCenter entity, click **Show all in inventory** at the bottom of the Navigator portlet.

**Viewing Application Dependencies of a vCenter Entity**

The **Application Services** tab on the **Manage** tab displays the inventory table of a selected vCenter entity. The **Application Services** tab also displays additional information about the selected vCenter entity in the information panel at the bottom of the screen.

**Viewing the Inventory Table**

Each row in the inventory table displays information about a virtual machine that belongs to the selected vCenter entity.

For example, if you select an ESX host, all the virtual machines on that ESX host are listed in the inventory table. The virtual machine data displayed in each row of the inventory table is identical to the dependency table of that virtual machine.

Table 5-2. Inventory Table

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the virtual machine name as displayed in the VC inventory panel.</td>
</tr>
<tr>
<td>VM State</td>
<td>Displays the current state of the virtual machine.</td>
</tr>
<tr>
<td></td>
<td>■ Powered Off</td>
</tr>
<tr>
<td></td>
<td>■ Powered On</td>
</tr>
<tr>
<td>VM Status</td>
<td>Displays the current status of the virtual machine.</td>
</tr>
<tr>
<td></td>
<td>■ Normal</td>
</tr>
<tr>
<td></td>
<td>■ Alert</td>
</tr>
<tr>
<td></td>
<td>The field also displays a green icon for a Normal status and a red icon for an Alert status.</td>
</tr>
</tbody>
</table>
Table 5-2. Inventory Table (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>Displays a comma-separated list of mapped services along with their versions that are running on the selected virtual machine. In case of multiple services with the same version or multiple services without any version, the service name is displayed once with number of instances in parenthesis.</td>
</tr>
<tr>
<td>Applications</td>
<td>Displays a comma separated list of the manual applications and the automatic application instances that the selected virtual machine takes part in. Automatic instances are named after the respective application definition name followed by instance number in the brackets. All applications are displayed in an ascending order.</td>
</tr>
</tbody>
</table>
| Discovery Status | Displays the discovery status of the virtual machine.  
• Normal. Indicates absence of any error. For more information, see “Mapping Services,” on page 11.  
• Access failed. Indicates that the mapping process failed on the selected virtual machine and displays an error message stating the reason for failure.  
The field also displays a green icon for a Normal status and a gray icon for Access failed status. |
| Successful Discovery | Displays the time elapsed since the last successful discovery of the virtual machine. |
| Protection Group | Displays the Site Recovery Manager protection group of the virtual machine.  
A blank field indicates that the virtual machine does not belong to any Site Recovery Manager protection group. |
| Recovery Plans | Displays a comma-separated list of Site Recovery Manager recovery plans for the virtual machine.  
A blank field indicates that the virtual machine does not belong to any Site Recovery Manager recovery plan. |

The Protection Group and Recovery Plans column appears only if you decide to integrate vRealize Infrastructure Navigator with Site Recovery Manager. For information about Site Recovery Manager integration, see vRealize Infrastructure Navigator Installation and Configuration Guide.

Customize the Inventory Table

Draft comment filepath: GUID-E897A729-49A1-4D17-93CA-B31488FC45DF.xml

You can customize the inventory table by adding or removing columns. By default, vRealize Infrastructure Navigator does not display information about the state and the status of virtual machines in the inventory table.

Procedure

1 Select a vCenter entity from the inventory pane.
2 To view the inventory table for the selected vCenter entity, click the Application Services tab under Manage tab.
3 Right-click any column heading.
4 In the pop-up menu, click Show/Hide Columns.
   All columns of the inventory table appear in a list.
5 (Optional) To add a column, select an item from the list and click OK.
6 (Optional) To hide a column, deselect an item from the list and click OK.
Filter Text in the Inventory Table

vRealize Infrastructure Navigator enables you to search through a vCenter entity inventory table by filtering the information about a specific object.

You can specify the search criteria to search for a specific object. For example, you can enter partial host name as the search criteria.

Procedure
1. Select a vCenter entity from the inventory.
2. Click the Application Services tab on Manage tab.
   The Filter text box appears.
3. In the Filter text box, enter your search criteria for the object.
   Only the rows matching the search criteria appear in the table.
4. (Optional) Click Clear, to remove the filter and redisplay all the data that was initially displayed in the inventory table.

Export Inventory Table

You can export the inventory table related to a selected vCenter Server entity as a CSV file. All the information present in the inventory table is exported to the CSV file.

Procedure
1. Select the vCenter entity from the inventory pane.
2. Click the icon.
3. Select the folder where you want to save the CSV file.
4. Click Save.

All the data in the inventory table is exported to the CSV file.

Viewing Details of a vCenter Entity

By default, the information panel displays the details of the virtual machine that appears in the first row of the inventory table of the selected vCenter entity. As you select different rows in the inventory table, the information displayed in the information panel changes accordingly.

The information panel that appears below the inventory table is identical to the information panel that appears below the dependency map and the dependency table of the selected virtual machine.

To view the list and description of the fields in the information panel, see Table 4-6.
Managing vRealize Hyperic Agents

You can install vRealize Hyperic agents on virtual machines that are managed by vCenter Server, using vRealize Infrastructure Navigator.

In the Manage > Hyperic Agents tab, you can see all the virtual machines for which you have vRealize Infrastructure Navigator access privileges. Depending on the level of access you have been assigned, you can install a vRealize Hyperic agent on those virtual machines, refresh the status of the agents, or cancel pending agent installations.

Preparing to Install a vRealize Hyperic Agent on a Virtual Machine

Before you can install a vRealize Hyperic agent on a virtual machine, you must have sufficient privileges to perform the action. Privileges are assigned at the level of vCenter Server or one of its objects, and propagated.

You must configure certain agent management parameters for the vRealize Hyperic agent. During installation, the target virtual machine retrieves the agent installation files from the vRealize Infrastructure Navigator appliance, so you must verify that the virtual machine can retrieve the files from the vRealize Infrastructure Navigator appliance.

If you are using an external repository for the vRealize Hyperic agent installation files, you must ensure that the virtual machines can access that repository.

Procedures for Preparing to Install and Installing a vRealize Hyperic Agent on a Virtual Machine

There are a number of procedures to set up the environment and install a vRealize Hyperic agent on a virtual machine using vRealize Infrastructure Navigator.

This chapter includes the following topics:

- “Configure vRealize Hyperic Action Profiles,” on page 38
- “Edit vRealize Hyperic Action Profiles,” on page 38
- “Delete vRealize Hyperic Action Profiles,” on page 38
- “Install a vRealize Hyperic Agent on a Virtual Machine,” on page 39
- “Refresh the Agent Status Summary,” on page 40
- “Cancel Pending Tasks,” on page 40
Configure vRealize Hyperic Action Profiles

You configure vRealize Hyperic settings so that vRealize Infrastructure Navigator can communicate with the vRealize Hyperic agent. You can configure multiple profiles according to your requirements.

Procedure

1. Under Administration in the navigator panel, select Agent Management.
2. On the Hyperic Action Profiles tab, select the vCenter Server for which you are configuring vRealize Hyperic parameters.
3. Click the Add icon to create a new profile.
4. Type values for Name, Hyperic IP Address and Hyperic Password.
   - You can edit all of the profile values. If you edit the Windows installation directory parameter, you must only use ASCII characters.
5. Verify that all the mandatory parameters have values.
6. Click Save.

Edit vRealize Hyperic Action Profiles

You can edit vRealize Hyperic action profiles and apply them to your deployed vRealize Hyperic agents.

Procedure

1. Under Administration in the navigator panel, select Agent Management.
2. On the Hyperic Action Profiles tab, select the vCenter Server for which you are editing vRealize Hyperic profile parameters.
3. Select the profile to edit from the list and click the Edit icon to display the current profile settings.
4. Edit the profile values as required.
   - If you edit the Windows installation directory parameter, you must only use ASCII characters.
5. Verify that all the mandatory parameters have values.
6. Click Save.

The new values are applied to the profile. Any pending or running actions are not affected.

Delete vRealize Hyperic Action Profiles

You can delete a profile that is no longer required.

Procedure

1. Under Administration in the navigator panel, select Agent Management.
2. On the Hyperic Action Profiles tab, select the vCenter Server for which you are deleting a vRealize Hyperic action profile.
3. Select the profile to edit from the list and click the Delete.
4. Click Save.
The action profile is deleted. Pending and running actions are not affected when you delete a profile.

**Install a vRealize Hyperic Agent on a Virtual Machine**

You can install vRealize Hyperic agents on one or more virtual machines.

If you do not have the required administration privileges, but you have View and Perform Action privileges for the affected virtual machines, you can still view the list of machines and the status of the agents running on them.

You can select virtual machines for which you do not have administration privileges, but a vRealize Hyperic agent is only installed on the machines for which you do have the required privileges.

Should it be necessary, you can cancel pending agent installations. See “Cancel Pending Tasks,” on page 40.

**Prerequisites**

- You must have configured and applied vRealize Hyperic profile settings for the agent that you are installing on the virtual machines. You can click the **Hyperic Profile Settings** link to access the necessary Web page if necessary. See “Configure vRealize Hyperic Action Profiles,” on page 38.

- To install vRealize Hyperic agents on a virtual machines, you must have a user role with **Agent Management.Hyperic.Administrator** privileges for the target machines.

**Procedure**

1. Select the aggregated item in the vSphere Web Client navigator that includes the virtual machines on which to install a vRealize Hyperic agent.

2. On the **Manage > Hyperic Agents** tab, select one or more virtual machines on which to install a vRealize Hyperic agent.

   You can only install one vRealize Hyperic agent on a virtual machine.

3. Select the agent profile that applies for this agent installation.

   If you are deploying the agent on multiple virtual machines, the profile applies to each agent installation.

4. Click the Install Hyperic Agent on selected VMs icon at the top of the table.

A vRealize Hyperic agent is installed on the virtual machines. An error message appears in the Issues column of the table if installation of the agent fails on any of the virtual machines.

**What to do next**

Refresh the page to update the status information of the agents. See “Refresh the Agent Status Summary,” on page 40.

“Refresh the Agent Status Summary,” on page 40.
Refresh the Agent Status Summary
Draft comment filepath: GUID-8E9B41EE-36F1-4A82-A166-7ADBA005BA8F.xml

If the status of an agent changes during the period between automated refresh cycles, you do not immediately see the change. You can initiate a refresh to immediately display the current status of the agents and to view any installation-related error messages.

Procedure
1. Select the aggregated item in the vSphere Web Client navigator that contains the virtual machines whose status you want to refresh, and click the Manage > Hyperic Agents tab.
2. Click the Refresh Hyperic Agent's status icon to update the agent status for the virtual machines.

The current agent status of the virtual machines appears.

Cancel Pending Tasks
Draft comment filepath: GUID-3A1DC8B7-0A13-40CA-8364-71F1A6616DC4.xml

Installing vRealize Hyperic agents on many virtual machines in a single process can take some time. Until it is the turn of a virtual machine to have an agent installed, the installation task is in pending mode. You can cancel all pending tasks that you initiated.

When you cancel vRealize Hyperic agent installation pending tasks, all tasks that were initiated under your user name that have not begun to process are cancelled, regardless of whether the virtual machines are listed in the currently displayed table. Agents that have already been installed on virtual machines are not affected.

Procedure
   ♦ Click the Cancel Pending Tasks icon above the table and, at the prompt, click OK.

All pending tasks that were initiated with your user name are cancelled.
Index

A
access virtual machines 28
action profiles
  configure 38
  delete 38
  edit 38
active discovery 10, 12
Active Discovery 9
Adaptive Server Enterprise 13
agents
  cancel installation 40
  install 39
  managing 37
  refresh status 40
aging 27
Apache 13
application
  add vms 29
  create manually 28
  rename manually created 28
application definition 30
application group 28
application instance 30
application management 13, 33
application name 28
application server 13, 33
application services 8, 19, 33
application visibility 19
application definition creation 30
application definition deletion 31
application definitions management table 30
application dependencies tab 15, 19, 20
application instances 30, 31
architecture 9
audience 5

B
benefits 8

C
cache server 13, 33
change 8
cluster 24
compatible 15
configurations 10
create user defined service 26
CSV file 32, 36
customize inventory table 35

database component 10
database server 13, 33
DB2 13
dependencies
  aging 27
  second level 22
dependency map, remove virtual machines 29
dependency table 23
dependency map toolbar 23
disable plug-in 16
discovery 30
discovery status 19, 23, 34
DNS name 24
edit application definition 31
enable plug-in 16
entities, external 27
Exchange 13
export application definition 32
export inventory table 36

feedback 5
filter text 36
fit content 23
frequency 12
functionality 7

GemFire 13
graphical user interface 10
guest operating system 11, 24

host 24

I
IIS 13
incoming dependency 19, 21
information panel 20, 24, 34, 36
integration 7
invalid user-defined service 31
inventory 19, 33
inventory table 33, 34, 36
IP address 15, 24

J
JBoss 13

K
knowledge base 26

L
login 15

M
magnifier 23
mail server 13, 33
manual application 28
map and table messages 20
mapping 8, 11, 12
messages, map and table 20
messaging server 13, 33
MS-SQL DB 13
MySQL DB 13

N
navigate 21
Navigator tab 33, 36
network 24
NGINX 13
notification messages 16

O
Oracle DB 13
outgoing dependency 19, 21
overview, vRealize Infrastructure Navigator 7

P
password 15
plug-in 10
port based service 26
portal 15
portlet 19, 33
protection group 23, 34

R
RabbitMQ 13
recovery plan 23, 34
remapping 12

S
search 36
server component 10
service category 30, 31
service name 30, 31
services, create user-defined 26
SharePoint 13
Site Recovery Manager 7, 23, 34
storage 24
successful discovery 19
support 5
Sybase DB 13
synchronize 12

T
tc Server 13
Tomcat 13

U
user name 15
user-defined service
create 26
delete 27
edit 26

V
vApp 24
vCenter entity 8, 33, 34, 36
vCenter Server 7, 9, 15, 16, 19, 33
virtual environment 8
virtual infrastructure 7, 8
virtual appliance 9, 12
virtual machines, remove from dependency map 29
virtualization management 13, 33
VM name 23
VM Name 34
VM state 23
VM State 34
VM status 23
VM Status 34
VMware Tools 11, 24
vRealize Hyperic
configure action profiles 38
install agents 39
manage agents 37, 40
refresh agent status 40
vSphere Web Client 10, 15, 16

W
Web server 13, 33
WebLogic 13
WebSphere 13

Z
zoom in 23
zoom out 23