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 Business Standard Installation and Administration 5

1 Introduction to vRealize Business Standard 7
  Challenges Faced by the Manager of Cloud Operations 7
  vRealize Business Standard Goals 7
  vRealize Business Standard Architecture 8
  Supported Product Integrations 10

2 Installing vRealize Business Standard 13
  vRealize Business Standard System Requirements 14
  vRealize Business Standard Deployment Scenarios and Best Practices 16
  Deploy vRealize Business Standard Virtual Appliance on vSphere 17
  Deploy vRealize Business Standard Virtual Appliance on vCloud Director 18
  Deploying a Remote Data Collector 20
  Register a Remote Data Collector with vRealize Business Standard Server 20
  Start the vRealize Business Standard Appliance 21
  Upgrade to vRealize Business Standard 7.0 22
  Register vRealize Business Standard with vRealize Automation 22
  Access vRealize Business Standard by using vRealize Automation 23
  Unregister vRealize Business Standard from vRealize Automation 24
  Managing vRealize Business Standard Virtual Appliance 25
  Configure Time Synchronization 25
  Change or Replace the SSL Certificate of vRealize Business Standard 26
  Enable or Disable SSH Settings 27

3 Setting Up vRealize Business Standard 29
  vRealize Business Standard Administration 29
  Manage Private Cloud Connections 30
  Manage Public Cloud Accounts 33
  Update the Reference Database for vRealize Business Standard 43
  Generate and Download the Support File 44
  Update Licenses for vRealize Business Standard 44
  Generate Token for vRealize Business Advanced and Enterprise Integration 45
  Managing the Data Collectors 45
  Calculating Depreciation of Server Hardware Cost 46
  View and Update System Status 47

4 Troubleshooting vRealize Business Standard 51
  vRealize Business Standard is Disconnected 51
  Error While Accessing Business Management Tab 52
  Business Management Tab Does not Appear 52
HTTP Error 500 on Business Management Tab 53
HTTP Error 401 Unauthorized Occurs While Accessing the Business Management Tab 53
vRealize Business Standard and vRealize Automation Connection Failure 54
vCenter Server Data Collection Failure 54
vCenter Server Status Shows Red 55
Data Collection Fails After vCenter Server Upgrade 55
The ESXi Server Cost is Doubled in vRealize Business Standard 56
vCloud Director -Based Categorization Issues 56
Virtual Machine Details Present in vCloud Director Are Not Displayed 56
AWS Account Addition Failure 57
Unable to Add EMC SRM Storage Servers 57
Storage Array Details Do Not Appear 58
The Computed LUN Rate Does Not Match the Actual Rate 59
vCenter Server Storage Synchronization Failure 60
Unable to Connect to vSphere or vApp Provisioned Resource With Internet Explorer 60
Issue with Filtering Reports 61

Index 63
vRealize Business Standard Installation and Administration

The VMware® vRealize Business™ Standard Installation and Administration guide provides information about installing and configuring vRealize Business Standard.

Intended Audience

This information is intended for anyone who wants to install and configure vRealize Business Standard. The information is written for administrators who are familiar with virtual machine technology and data center operations.

VMware Technical Publications Glossary

VMware Technical Publications provides a glossary of terms that might be unfamiliar to you. For definitions of terms as they are used in VMware technical documentation, go to http://www.vmware.com/support/pubs.
Introduction to vRealize Business Standard

VMware vRealize Business Standard provides capabilities that allow users to gain greater visibility into financial aspects of their cloud infrastructure and let them optimize and improve these operations.

This chapter includes the following topics:

- “Challenges Faced by the Manager of Cloud Operations,” on page 7
- “vRealize Business Standard Goals,” on page 7
- “vRealize Business Standard Architecture,” on page 8
- “Supported Product Integrations,” on page 10

Challenges Faced by the Manager of Cloud Operations

The Manager of cloud operations in an organization constantly faces the following challenges regarding cost visibility and optimization in the delivery of Infrastructure as a Service (IaaS).

- What is the total spending and of what is it comprised?
- What is the cost of delivering a unit of IaaS?
- How does consumption change over time?
- What are these services used for and what is the cost allocation for each?
- How is my cost efficiency compared to that of other public cloud infrastructures?
- What is the cost of potential alternatives to delivering IaaS?
- How do I use the information above to optimize the cost of my existing and future operations?
- How do I create an accurate consumption report to show it to the stakeholders?

vRealize Business Standard Goals

vRealize Business Standard provides business management and cost transparency capabilities to your infrastructure and public cloud.

- Determine pricing of vRealize Automation blueprints by using the current cost and utilization levels of virtual machines as a reference.
- Make decisions related to placement of workloads, either in the private or public clouds, based on the cost and the services available in your cloud environment.
- Provide consumption cost of virtual machine and blueprints based on business unit across the cloud environment.
- Let infrastructure stakeholders manage costs based on capital expenditure and operating expenditure.
- Get accurate cost of virtual machines without performing any financial configuration.
- Provide cost visibility of storage and public cloud accounts.
- Support costing of non-ESXi physical servers managed by vRealize Automation.

**vRealize Business Standard Architecture**

vRealize Business Standard provides users greater visibility into the financial aspects of their IaaS delivery and lets them optimize and improve these operations.

The architecture illustrates the main components of vRealize Business Standard, the server, FactsRepo inventory service, data transformation service, data collection services, and reference database.

**Figure 1-1. vRealize Business Standard Architecture**
Data Collection Services

Data collection services include a set of services for each private and public cloud endpoint such as vCenter Server, vCloud Director, AWS, and vCloud Air for retrieving both inventory information (servers, virtual machines, clusters, storage devices, and associations between them) and usage (CPU and memory) statistics. The data collected from data collection services is used for cost calculations.

FactsRepo Inventory Service

It is an inventory service built on MongoDB to store the collected data that the vRealize Business Standard server uses for the cost computation.

Data Transformation Service

The data transformation service converts the source specific data received from data collection services into the structures consumable by FactsRepo. The data transformation service is a single point of aggregation of data from all data collectors.

vRealize Business Standard Server

vRealize Business Standard server is a web application that runs on Pivotal tc Server. vRealize Business Standard has multiple data collection services that run periodically to collect inventory information and statistics and uses vPostgres as the persistent store. The data collected from data collection services is used for cost calculations.

NOTE  The vPostgres stores only computed data; FactsRepo stores raw data.

Reference Database

This component is responsible for providing default, out-of-the-box costs for each of the supported cost drivers. Reference database is updated automatically or manually, and user can download the latest data set and import the data set into vRealize Business Standard. The new values affect cost calculation. Reference data that is used depends on currency you select during installation. You cannot change the currency configuration after deploying vRealize Business Standard.

Communication between Server and Reference Database

Reference database is a compressed and encrypted file, which the users can download and install manually or update automatically. You can update the most current version of reference database. For more information, see “Update the Reference Database for vRealize Business Standard,” on page 43.

Other Sources of Information

These sources are optional, and are used only if installed and configured. The sources include vRealize Automation, vCloud Director, vRealize Operations Manager, Amazon Web Services (AWS), Microsoft Azure, and vCloud Air, and EMC Storage Resource Manager (SRM).

How vRealize Business Standard works

vRealize Business Standard collects data from external sources continuously and periodically updates FactsRepo. The collected data can be viewed on the dashboard or can generate the report. The data synchronization or update happens at regular interval. However, you can manually trigger the data collection process when the inventory changes occur, such as initialization of the system or addition of a private, public, or hybrid cloud account.
External Interfaces

Below are the interfaces/APIs published to external applications.

<table>
<thead>
<tr>
<th>Interface</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vRealize Automation</td>
<td>Call the vRealize Business Standard to get the cost profiles.</td>
</tr>
<tr>
<td>vRealize Business Advanced and Enterprise</td>
<td>Can receive inventory information, which is used as a basis for cost model creation by using the REST APIs.</td>
</tr>
</tbody>
</table>

Supported Product Integrations

vRealize Business Standard integrates with various products and lets you use the information directly from the integration without having to manually enter the information.

VMware vSphere

vRealize Business Standard allows addition of one or more vCenter Server machines to get the complete inventory list. The inventory list contains information related to virtual machines configuration, ESXi host capacity, cluster capacity, storage policies, storage capacity, attributes and tags.

VMware vCloud Director

vRealize Business Standard integration with vCloud Director lets you view the organizational constructs from vCloud Director. vRealize Business Standard supports organization, organization virtual datacenter (vDC), virtual machines, and vApp constructs.

VMware vRealize Business Advanced and Enterprise

vRealize Business Standard collects data by using REST APIs. The information includes object properties along with costs and allocations around virtual machines, physical servers, data stores, and the public cloud. vRealize Business Advanced and Enterprise uses these APIs to collect private and public cloud information, which can be used in cost models and reports.

VMware vRealize Operations Manager

vRealize Business Standard can integrate with vRealize Operations Manager 5.x and 6.x through a vCenter Server. In an integrated environment, vRealize Business Standard collects the usable CPU and memory utilization for each clustered or unclustered ESXi host. It also collects information about the oversized virtual machines from vRealize Operations Manager.

When vRealize Business Standard is integrated with vRealize Operations Manager 6.x, vRealize Business Standard collects additional details about powered off and idle VMs and also details about used and remaining capacity of each data center in the registered vCenter Server. You can also set the expected CPU and memory utilization for the host by using the system defined value, which is computed by using historical averages, or by defining a global value, or by defining a value at each cluster level. This value is used for calculating the virtual machine cost allocation.

VMware vRealize Automation

vRealize Business Standard is tightly integrated with vRealize Automation. vRealize Business Standard appears as a tab, named as Business Management, in the vRealize Automation user interface. vRealize Business Standard uses the common services of vRealize Automation such as Single Sign-On support and identity management by means of an embedded VMware Identity Manager authentication and
authorization. The Infrastructure as a Service (IaaS) component of vRealize Automation consumes the base rate APIs of vRealize Business Standard to compute blueprint price of virtual machines. vRealize Business Standard also has data integration with IaaS component of vRealize Automation. You can define rules and categorize according to vRealize Automation hierarchy.

**Amazon Web Services, Microsoft Azure, and vCloud Air**

vRealize Business Standard can integrate with public cloud platform such as Amazon Web Services (AWS) and Microsoft Azure, which enables your organization to dynamically scale its IT infrastructure. vRealize Business Standard provides its users an overview of how their investments are spread across Amazon Web Services (AWS) and Microsoft Azure public cloud.

vRealize Business Standard integrates with vCloud Air to provide public services and hybrid capabilities. vRealize Business Standard supports Dedicated Cloud, Virtual Private Cloud and Pay As You Go (PAYG) subscription types.

**EMC Storage Resource Management**

vRealize Business Standard can integrate with EMC Storage Resource Management (SRM), which provides information about arrays, disks, and LUNs. These attributes forms the storage infrastructure of an organization and helps to determine the storage cost of virtual machines based on computed data store base rates. vRealize Business Standard supports EMC SRM 3.2 and later versions.
Installing vRealize Business Standard

You can install vRealize Business Standard as a virtual appliance on a vCenter Server or as a vApp on vCloud Director.

This chapter includes the following topics:

- “vRealize Business Standard System Requirements,” on page 14
- “vRealize Business Standard Deployment Scenarios and Best Practices,” on page 16
- “Deploy vRealize Business Standard Virtual Appliance on vSphere,” on page 17
- “Deploy vRealize Business Standard Virtual Appliance on vCloud Director,” on page 18
- “Deploying a Remote Data Collector,” on page 20
- “Register a Remote Data Collector with vRealize Business Standard Server,” on page 20
- “Start the vRealize Business Standard Appliance,” on page 21
- “Upgrade to vRealize Business Standard 7.0,” on page 22
- “Register vRealize Business Standard with vRealize Automation,” on page 22
- “Unregister vRealize Business Standard from vRealize Automation,” on page 24
- “Managing vRealize Business Standard Virtual Appliance,” on page 25
- “Configure Time Synchronization,” on page 25
- “Change or Replace the SSL Certificate of vRealize Business Standard,” on page 26
- “Enable or Disable SSH Settings,” on page 27
vRealize Business Standard System Requirements

Before you install vRealize Business Standard, verify that minimum hardware and software requirements are met.

vRealize Business Standard Sizing and Server Specification Requirements

The vRealize Business Standard server requires a minimum of 50GB of disk space, 4GB memory, and 2 vCPU. If you are deploying only the remote data collector, without the vRealize Business Standard server, you can reduce the memory size to 2GB.

**NOTE** If the vRealize Business Standard server has to manage more than 10,000 virtual machines, the server might restart or you might see an out of memory error. Perform the following to increase the number of vCPUs and memory of the vRealize Business Standard virtual appliance.

2. Right click on the virtual machine and select **Properties**.
3. Select the **Hardware** tab and update the following parameters.
   - Number of virtual CPUs: 4
   - Cores per socket: 1
   - Total memory: 8 GB
   - Select the **Expose hardware-assisted CPU virtualization to guest OS** option, if the virtual machine is deployed on vCloud Director.
4. Click **OK**.
5. Start the vRealize Business Standard virtual appliance virtual machine.
6. Login to the virtual appliance and perform the following:
   a. Stop facts-repo by running the `monit stop facts-repo` command.
   b. Navigate to `/etc/default/facts-repo` and replace the `-Xmx900m` parameter to `-Xmx1024m` parameter.
   c. Start facts-repo by running the `monit start facts-repo` command.
7. Run the `monit start itbm-server` command to start the vRealize Business Standard server.

Port Requirements

Following ports should be open for communication between different entities.

<table>
<thead>
<tr>
<th>Source</th>
<th>Destination</th>
<th>Protocol</th>
<th>Port</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vRealize Automation</td>
<td>vRealize Business Standard</td>
<td>SSH</td>
<td>22</td>
<td>For an external SSH connection</td>
</tr>
<tr>
<td>vRealize Business Standard Web console (browser)</td>
<td>vRealize Business Standard</td>
<td>HTTPS</td>
<td>5480</td>
<td>For the web management interface</td>
</tr>
</tbody>
</table>
### Virtualization Software Requirements

Before you install the vRealize Business Standard virtual appliance, your environment must meet certain requirements.

- vCloud Director 5.5 and later and 8.0. See vCloud Director documentation at [https://www.vmware.com/support/pubs/vcd_pubs.html](https://www.vmware.com/support/pubs/vcd_pubs.html).

### Web Interface Support

Because vRealize Business Standard is integrated with vRealize Automation, you can use all of the browsers that vRealize Automation supports.

- Microsoft Internet Explorer 10 and later and its compatibility modes. In Internet Explorer, select **Tools > Compatibility View Settings** and disable the **Display intranet sites in Compatibility View** check box.
- Google Chrome 36.x and later.
- Mozilla Firefox 31.x and later.

You must have the VMRC plug-in for vCloud Director installed to work with your browser.

**Note** The screen resolution must be above 1024x768 to view the complete vRealize Business Standard user interface. If you set the resolution to 1024x768 or lower, you might not see all the options such as **Status** and **Help** on the user interface. To view the complete vRealize Business Standard user interface, zoom out the browser or increase the screen resolution.
vRealize Business Standard Deployment Scenarios and Best Practices

vRealize Business Standard supports two versions of vRealize Automation releases, the latest version of vRealize Automation 6.2.3 and vRealize Automation 7.0.

Deployment Scenarios

You can deploy the vRealize Business Standard appliance either with vRealize Automation standalone (use this approach if you do not own vRealize Automation) or with vRealize Automation with the Infrastructure as a Service (IaaS) component integrated.

Following are the scenarios to deploy the vRealize Business Standard virtual appliance:

- Deploy vRealize Business Standard with vRealize Automation that is integrated with the IaaS component.
- Deploy vRealize Business Standard with vRealize Automation that does have IaaS integration.

Table 2-1. Deployment Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Steps to perform</th>
</tr>
</thead>
</table>
| To deploy with vRealize Automation 6.2.3 | 1. Deploy and configure VMware identity virtual appliance (SSO).  
2. Deploy the vRealize Automation virtual appliance and configure to point to identity virtual appliance.  
3. Deploy the vRealize Business Standard virtual appliance and then register vRealize Business Standard with vRealize Automation.  
**Note** If you are using vRealize Business Standard standalone version, apply the vRealize Automation license key provided on the vRealize Automation tab of the vRealize Business Standard virtual appliance. |
| To deploy with vRealize Automation 7.0 | 1. Deploy the vRealize Automation virtual appliance.  
2. Deploy the vRealize Business Standard virtual appliance and then register vRealize Business Standard with vRealize Automation.  
**Note** If you are using vRealize Business Standard standalone version, apply the vRealize Business Standard license key in the vRealize Automation virtual appliance. |

Best Practices

- For deploying remote data collectors, ensure that the data collector is in the same LAN where your vCenter Server setups are deployed. In case of embedded data collectors, deploy vRealize Business Standard in the same LAN where your vCenter Server setups are deployed.
Deploy vRealize Business Standard Virtual Appliance on vSphere

You can deploy the vRealize Business Standard virtual appliance by using vSphere Client on the vCenter Server. The vRealize Business Standard virtual appliance will be in the OVA format.

Prerequisites

- Download and Install vRealize Business Standard on vSphere (http://link.brightcove.com/services/player/bcpid2296383276001?bctid=ref:video_download_install_vrbs_on_vsphere)
- Log in to the vSphere server by using a vSphere client or web client as a user with administrator privileges.
- Verify that your system meets all the requirements as described in “vRealize Business Standard System Requirements,” on page 14.
- Verify that you have deployed and configured the VMware identity virtual appliance in your cloud environment. See vRealize Automation Installation Guide.
- Verify that you have deployed and configured the vRealize Automation virtual appliance in your cloud environment. See vRealize Automation Installation Guide.

Procedure

1. In the vSphere Client, select File > Deploy OVF Template.
2. Browse to the OVA file, select it, and click Next.
3. On the OVF Template Details pane, click Next.
4. Accept the End User License Agreement and click Next.
5. On the Name and Location pane, type a unique virtual appliance name according to the IT naming convention of your organization and click Next.
   - If more than one data center is present, select the data center on which to deploy the virtual appliance.
6. On the Host/Cluster pane, select the host or cluster on which to deploy the virtual appliance, and click Next.
7. On the Storage pane, select the storage location on which to store the virtual appliance, and click Next.
8. On the Disk Format pane, select Thick Provision Lazy Zeroed as the disk format and click Next.
9. In the Network Mapping pane, select the destination network and click Next.
10. On the Properties pane,
   - Set the root user password for your appliance.
   - Select the currency of your choice.

<table>
<thead>
<tr>
<th>Currency Name</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Dollar</td>
<td>AUD</td>
</tr>
<tr>
<td>Canadian Dollar</td>
<td>CAD</td>
</tr>
<tr>
<td>China Yuan Renminbi</td>
<td>CNY</td>
</tr>
<tr>
<td>Euro</td>
<td>EUR</td>
</tr>
<tr>
<td>British Pound</td>
<td>GBP</td>
</tr>
<tr>
<td>Hong Kong Dollar</td>
<td>HKD</td>
</tr>
<tr>
<td>Indonesia Rupiah</td>
<td>IDR</td>
</tr>
</tbody>
</table>
Currency Name  Abbreviation
---  
Israeli Shekel  ILS
Indian Rupee  INR
Japanese Yen  JPY
Korean (South) Won  KRW
Malaysia Ringgit  MYR
Norway Krone  NOK
New Zealand Dollar  NZD
Russia Ruble  RUB
Saudi Arabian Riyal  SAR
Sweden Krona  SEK
Swiss Franc  CHF
Singapore Dollar  SGD
Turkey Lira  TRY
Taiwan New Dollar  TWD
US Dollar  USD
South Africa Rand  ZAR

**NOTE** You cannot change the currency configuration after deploying vRealize Business Standard. If you do not select a currency, US Dollar (USD) is selected, by default.

- To deploy the vRealize Business Standard server, select the **Enable Server** option. If you are deploying only a data collector for remote access, deselect this option.
- Select **Enable SSH Service** option for remote access to virtual machine Linux console. It is recommended to enable this option only if debugging of the appliance is required. You can also enable SSL from the vRealize Business Standard web console. See “Enable or Disable SSH Settings,” on page 27.
- Configure the default gateway, DNS, static IP address, and netmask values. It is recommended to configure the default gateway, DNS, IP address, and netmask values manually.

Click **Next**.

11 Select **Power on after deployment**, and click **Finish** to confirm the settings and begin the deployment.

The process of deploying the vRealize Business Standard virtual appliance might take a few minutes.

**What to do next**


**Deploy vRealize Business Standard Virtual Appliance on vCloud Director**

To install vRealize Business Standard on vCloud Director, you must download the appliance. For information about adding vApps, see the vCloud Director documentation.

**Prerequisites**

- Deploy vCloud Director 5.1 or later.
Log in to the vCloud Director as a user with administrator privileges.

Verify that the system meets all the requirements as described in “vRealize Business Standard System Requirements,” on page 14.

Verify that you have deployed and configured the VMware identity virtual appliance in your cloud environment. See vRealize Automation Installation Guide.

Verify that you have deployed and configured the vRealize Automation virtual appliance in your cloud environment. See vRealize Automation Installation Guide.

Convert OVA format to OVF format. See https://www.vmware.com/support/developer.ovf. Verify that the .ovf and .vmdk files are in the same folder.

**Procedure**

1. Log in to vCloud Director and select the organization in which to deploy vRealize Business Standard.
2. Select the Catalog and click the vApp Templates tab.
3. Click the Upload icon.
4. In the Upload OVF as a Template window, provide the requested information.
   - Configure the IP allocation from the static pool.
5. If a certificate warning appears, click OK to continue uploading the appliance.
6. Right-click the uploaded template, select Add to My Cloud, and follow the prompts to add a vApp.
   - In the Custom Properties pane, set the root user password for the appliance.
   - Define networking properties for the appliance.
   - Select the currency of your choice.

<table>
<thead>
<tr>
<th>Currency Name</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Dollar</td>
<td>AUD</td>
</tr>
<tr>
<td>Canadian Dollar</td>
<td>CAD</td>
</tr>
<tr>
<td>China Yuan Renminbi</td>
<td>CNY</td>
</tr>
<tr>
<td>Euro</td>
<td>EUR</td>
</tr>
<tr>
<td>British Pound</td>
<td>GBP</td>
</tr>
<tr>
<td>Hong Kong Dollar</td>
<td>HKD</td>
</tr>
<tr>
<td>Indonesia Rupiah</td>
<td>IDR</td>
</tr>
<tr>
<td>Israeli Shekel</td>
<td>ILS</td>
</tr>
<tr>
<td>Indian Rupee</td>
<td>INR</td>
</tr>
<tr>
<td>Japanese Yen</td>
<td>JPY</td>
</tr>
<tr>
<td>Korean (South) Won</td>
<td>KRW</td>
</tr>
<tr>
<td>Malaysia Ringgit</td>
<td>MYR</td>
</tr>
<tr>
<td>Norway Krone</td>
<td>NOK</td>
</tr>
<tr>
<td>New Zealand Dollar</td>
<td>NZD</td>
</tr>
<tr>
<td>Russia Ruble</td>
<td>RUB</td>
</tr>
<tr>
<td>Saudi Arabian Riyal</td>
<td>SAR</td>
</tr>
<tr>
<td>Sweden Krona</td>
<td>SEK</td>
</tr>
<tr>
<td>Swiss Franc</td>
<td>CHF</td>
</tr>
<tr>
<td>Currency Name</td>
<td>Abbreviation</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Singapore Dollar</td>
<td>SGD</td>
</tr>
<tr>
<td>Turkey Lira</td>
<td>TRY</td>
</tr>
<tr>
<td>Taiwan New Dollar</td>
<td>TWD</td>
</tr>
<tr>
<td>US Dollar</td>
<td>USD</td>
</tr>
<tr>
<td>South Africa Rand</td>
<td>ZAR</td>
</tr>
</tbody>
</table>

**NOTE**: You cannot change the currency configuration after deploying vRealize Business Standard. If you do not select a currency, US Dollar (USD) is selected, by default.

- To deploy the vRealize Business Standard server, select the **Enable Server** option. If you are deploying only a data collector for remote access, deselect this option.

- Select **Enable SSH Service** option for remote access to virtual machine Linux console. It is recommended to enable this option only if debugging of the appliance is required. You can also enable SSL from the vRealize Business Standard web console. See “Enable or Disable SSH Settings,” on page 27.

7. In the Custom Hardware pane, click **Next**.

8. In the Ready to Complete pane, click **Finish**.

9. Navigate to **My Cloud**.

10. Right-click the vRealize Business Standard virtual machine and select **Properties**.

11. On the **Guest OS Customization** tab, select **Enable guest customization**, deselect **Allow local administrator password**, and click **OK**.

12. Right-click the newly added vApp and select **Start**.

**What to do next**


**Deploying a Remote Data Collector**

You can deploy a remote data collector to enable remote data collection from geographically distributed endpoints.

**NOTE**: To deploy the remote data collector, deselect the **Enable Server** option while deploying vRealize Business Standard. By default, the vRealize Business Standard deployment process embeds a data collector.

The data collector interacts with vCenter Server, vCloud Director, EMC Storage Resource Manager (SRM), and public cloud instances (AWS, vCloud Air), and pushes the data to the vRealize Business Standard server.

**Register a Remote Data Collector with vRealize Business Standard Server**

After you deploy a remote data collector, you must register it with a vRealize Business Standard server to process inventory information (servers, virtual machines, clusters, storage devices, and associations between them) and usage (CPU and memory) statistics from the data sources.

**Prerequisites**

- Verify that you have deployed a vRealize Business Standard server.
Verify that you have generated a one-time key on vRealize Business Standard server. See "Generate One Time Key for Remote Data Collection," on page 45.

Procedure
1. Log in to the data collection manager on the 9443 port as a root user in following URL format - https://Remote_Data_Collector_IP_address:9443/dc-ui/.
2. Expand the Register with vRealize Business Server option.
3. Enter the IP address or the host name of the vRealize Business Standard server.
4. Enter or paste the one-time key that you have generated on vRealize Business Standard.
5. Click Update.

What to do next
Add data sources to the remote data collector, see “Manage Private Cloud Connections,” on page 30 or add public cloud accounts, see “Manage Public Cloud Accounts,” on page 33.

Start the vRealize Business Standard Appliance
You must start the vRealize Business Standard virtual appliance to verify that your installation was successful.

Prerequisites
Verify that you have the VMRC plug-in for vCloud Director installed to work with your browser. See “Web Interface Support,” on page 15.

Procedure
1. Open the vRealize Business Standard appliance.
   - From the vSphere Client, locate the powered on virtual machine and click the Console tab.
   - From vCloud Director, double-click the vApp and select Popout Console.
2. Wait for few minutes for appliance to start completely and then press Enter.
   This confirms that your appliance has started successfully.
3. Perform the following steps to verify whether the vRealize Business Standard web console is accessible on a browser.
   a. Navigate to the appliance URL by using a supported browser.
      The appliance URL format is https://vRealize_Business_Standard_IP_address:5480.
   b. Login to the appliance by using the root user name and password that you have defined at the time of deployment.
   c. Click Login.
      The vRealize Business Standard Web console opens in the browser.

What to do next
For the first time deployment users, register your virtual appliance, see “Register vRealize Business Standard with vRealize Automation,” on page 22. If you have deployed the vRealize Business Standard 7.0 version, “Upgrade to vRealize Business Standard 7.0,” on page 22.
Upgrade to vRealize Business Standard 7.0

vRealize Business Standard 7.0 is based on SUSE Linux Enterprise Server (SLES) 12, whereas the earlier versions were based on 11 SLES. So, the vRealize Business Standard 7.0 upgrade process involves deployment of the vRealize Business Standard 7.0 server and then migration of data.

**Note** You must run the migration process, only if you were using an earlier version of vRealize Business Standard. For the first time deployment, you can skip the migration process and perform the registration with vRealize Automation directly.

**Prerequisites**

- Ensure that you have a vRealize Business Standard 6.0 or later version setup.
- Deploy the 7.0 version of vRealize Business Standard on vSphere or vCloud Director. See “Deploy vRealize Business Standard Virtual Appliance on vSphere,” on page 17 and “Deploy vRealize Business Standard Virtual Appliance on vCloud Director,” on page 18.
- Take a snapshot of the vRealize Business Standard 7.0 virtual appliance.
- Enable the SSH settings on your earlier vRealize Business Standard virtual appliance, see “Enable or Disable SSH Settings,” on page 27.

**Procedure**

2. Type the user name and password of the virtual appliance and click Login.
3. Click the Migrator tab.
4. Enter the earlier virtual appliance details such as IP address, username and password.
5. Click Migrate.

The migration process takes some time. After the successful completion of the process, you see the confirmation message.

**What to do next**


Register vRealize Business Standard with vRealize Automation

You can use the vRealize Business Standard Web console to configure vRealize Business Standard appliance with vRealize Automation.

**Prerequisites**

- Verify that you have deployed and configured the vRealize Automation virtual appliance in your cloud environment.

**Procedure**

2. Type the user name and password of the virtual appliance and click Login.
3 On the vRealize Automation tab, type the credentials to register with vRealize Automation server.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostname</td>
<td>Type the host name or IP address of the vRealize Automation virtual appliance.</td>
</tr>
<tr>
<td>SSO Default Tenant</td>
<td>Type the SSO default tenant name that you have defined while configuring your vRealize Automation virtual appliance.</td>
</tr>
<tr>
<td>SSO Admin User</td>
<td>Type the administrator user name that you have defined while configuring your vRealize Automation virtual appliance.</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE</strong> Enter only the user name without the domain name such as @vSphere.com.</td>
</tr>
<tr>
<td>SSO Admin Password</td>
<td>Type the administrator password that you have defined while configuring your vRealize Automation virtual appliance.</td>
</tr>
</tbody>
</table>

4 Register vRealize Business Standard with vRealize Automation.

<table>
<thead>
<tr>
<th>Option</th>
<th>Action</th>
</tr>
</thead>
</table>
| If you are registering for the first time or if vRealize Automation certificate has changed | a Click Register. Registration fails and Failed to register with vRealize Automation message appears.  
|                                              | b (Optional) To view the vRealize Automation certificate, click View vRealize Automation certificate link.  
|                                              | c Click Accept vRealize Automation certificate check box.  
|                                              | d Click Register.  
| If you had already registered with vRealize Automation | a Click Register.  

If all the parameters are correct, a Registered with vRealize Automation server message appears.

**NOTE** If you change the certificate of vRealize Automation, you need to again register vRealize Business Standard with vRealize Automation.

### Access vRealize Business Standard by using vRealize Automation

You can access the vRealize Business Standard user interface after logging in to the vRealize Automation user interface.

The vRealize Business Standard user interface appears as a tab in the vRealize Automation user interface.

#### Prerequisites

Verify that you have created a vRealize Business Standard tenant. For more information, see vRealize Automation documentation.

#### Procedure

1 Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.

2 Click the Administration tab.

3 Click Users & Groups and select Identify Store Users & Groups.

4 Search and select the user to which you want to add a role.
5 From the Add Roles to this User box, assign the following privileges based on the requirement.

- If the user has to perform all administration tasks such as managing connections, managing public cloud account, updating reference database, assign the Business Management Administrator role to a user who has the Tenant Administration role.

  NOTE To assign the Tenant Administration role to the user, you must log in as the system administrator in vRealize Automation.

- If the user has to view and update the cost information only, assign Business Management Administrator role.

- If the user has to view the details but not update the information, assign Business Management Read only role.

- If the user has to view the assigned tenant details, but not perform other administration, assign the Business Management Controller role.

  NOTE It is recommended not to assign multiple roles to a single user.

6 Click Update.

7 Refresh the browser.

The Business Management tab is available in the vRealize Automation user interface.

8 Click the Business Management tab.

A dialog prompts you to enter the license key.

9 Enter a valid license key and click Save.

Unregister vRealize Business Standard from vRealize Automation

If you want to deploy a new version of vRealize Business Standard appliance, you need to first unregister the earlier instance of vRealize Business Standard appliance from vRealize Automation.

Procedure


2 Type the user name and password of the virtual appliance and click Login.

3 On the vRealize Automation tab, type the credentials of already registered vRealize Automation server.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostname</td>
<td>The host name or IP address of the vRealize Automation virtual appliance.</td>
</tr>
<tr>
<td>SSO Default Tenant</td>
<td>The name of the SSO default tenant that you have defined while configuring your vRealize Automation virtual appliance.</td>
</tr>
<tr>
<td>SSO Admin User</td>
<td>The administrator user name that you have defined while configuring your vRealize Automation virtual appliance.</td>
</tr>
<tr>
<td>SSO Admin Password</td>
<td>The administrator password that you have defined while configuring your vRealize Automation virtual appliance.</td>
</tr>
</tbody>
</table>

4 Click Unregister.

If all the parameters are correct, an Unregistered with vRealize Automation server message is displayed.
Managing vRealize Business Standard Virtual Appliance

To provide business continuity during system downtime, vRealize Business Standard supports you with number of features.

Backup and Restore the vRealize Business Standard Virtual Appliance

To minimize system downtime and data loss in the event of failures, administrators can back up the vRealize Business Standard installation on a regular basis. If your system fails, you can recover by restoring the last known working backup. The system administrator backs up the vRealize Business Standard by exporting or cloning the virtual appliance and uses backups to restore the virtual appliance.

Back up appliances by exporting or cloning them. You can use the following methods to create backups:

- The vSphere Export function
- Cloning
- Tools like VMware vSphere Data Protection and Symantec NetBackup, to create backups of the VMs
- Back up virtual appliances

You can use snapshots to back up virtual appliances only if you store or replicate them to a location other than the appliance location. If the snapshot image is accessible after a failure, using it is the most direct way to restore the appliance.

If a failure occurs, a system administrator must restore vRealize Business Standard to a functional state.

High Availability, Fault Tolerance and Disaster Recovery

You can achieve the higher levels of availability, fault tolerance and disaster recovery in vRealize Business Standard through vCenter Server and Site Recovery Manager.

vRealize Business Standard does not have an in-built high availability or fault tolerance capabilities. However, you can deploy vRealize Business Standard appliances on the HA clusters managed by a vCenter Server and can enable fault tolerance for the appliance to provide additional protection.

In case of any site level failures, you can migrate the vRealize Business Standard appliance (as any other virtual machine) and power-on the appliance on a secondary site using Site Recovery Manager.

For more information, see vCenter Server and Site Recovery Manager documentation.

Configure Time Synchronization

You can configure the Network Time Protocol (NTP) server for periodic time synchronization. NTP is an industry standard and ensures accurate time in the servers.

Procedure

2. Type the user name and password of the virtual appliance and click Login.
3. On the Administration tab, select Time Settings.
4 Select an option from the **Time Sync Mode** menu.

<table>
<thead>
<tr>
<th>Option</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disable</td>
<td>Select this option to disable time synchronization.</td>
</tr>
<tr>
<td><strong>Note</strong> Server time must be synchronized to ensure the correct operation.</td>
<td></td>
</tr>
<tr>
<td>Use ESXi Host Time</td>
<td>Select this option to use your ESXi host server time. You must configure your ESXi server time before you use this option.</td>
</tr>
<tr>
<td>Use Time Server</td>
<td>Select this option to use time servers (NTP servers). For each time server that you are using, type the IP address or the host name in the Time Server text box. This is the recommended option.</td>
</tr>
</tbody>
</table>

5 Click **Save Settings**.

The configuration might take some time.

6 Verify that the value in Current Time is accurate.

7 Click **Refresh** to refresh the updated time settings and current time.

---

### Change or Replace the SSL Certificate of vRealize Business Standard

After deployment, you can replace vRealize Business Standard SSL certificate. You can change from self-signed certificate to Certifying Authority (CA) signed certificate. You can import the certificate private key and the certificate issued by a CA.

**Prerequisites**

To restore the old key store, take a backup of existing key store from `/usr/local/tcserver/vfabric-tc-server-standard/sharedconf/ssl.keystore`.

**Procedure**


2 Unregister vRealize Business Standard from vRealize Automation.

3 On the **Administration** tab, select **SSL**.

4 Select the certificate type from the **Choose Mode** menu. If you are using a PEM encoded certificate, select **Import PEM encoded certificate**.

**Note** Using self-signed certificate is not recommended for production environments.

<table>
<thead>
<tr>
<th>Option</th>
<th>Action</th>
</tr>
</thead>
</table>
| **Generate a self-signed certificate** | 1 Type a common name for the certificate in the Common Name text box. You can use the fully qualified domain name of the virtual appliance (hostname.domain.name) or a wildcard, such as *.mycompany.com. Do not accept a default value, unless it matches the host name of the virtual appliance.  
  2 Type your organization name, such as your company name, in the Organization text box.  
  3 Type your organizational unit, such as your department name or location, in the Organizational Unit text box.  
  4 Type a two-letter ISO 3166 country code, such as US, in the Country Code text box. |
| **Import PEM encoded certificate** | 1 Copy the certificate values from BEGIN PRIVATE KEY to END PRIVATE KEY, including the header and footer, and paste them in the RSA Private Key text box.  
  2 Copy the certificate values from BEGIN CERTIFICATE to END CERTIFICATE, including the header and footer, and paste them in the Certificate(s) (.pem) text box.  
  3 (Optional) If your certificate has a private key pass phrase, copy and paste it in the respective text box, which encrypts the private key of the certificate that you are importing. |
5 Click Replace Certificate.

6 Register vRealize Business Standard with vRealize Automation.

Enable or Disable SSH Settings

You might want to enable or disable the SSH settings for debugging purpose.

You must enable SSH before migrating to vRealize Business Standard 7.0 virtual appliance.

**Note**  It is recommended to keep the SSH disabled, when not required.

**Procedure**


2 Type the user name and password of the virtual appliance and click Login.

3 On the Administration tab, select Administration.

4 Click Toggle SSH setting to enable or disable the SSH settings.
After you deploy vRealize Business Standard, you can add vCenter Server, vCloud Director and EMC SRM instances to vRealize Business Standard. You can also update the reference database, manage public cloud accounts, download a support file, add and update the license key for vRealize Business Standard. You also can generate a token for integration with vRealize Business Advanced and Enterprise and also generate a key for registering a remote data collector. You can also calculate the depreciation of server hardware.

This chapter includes the following topics:

- “vRealize Business Standard Administration,” on page 29
- “Manage Private Cloud Connections,” on page 30
- “Manage Public Cloud Accounts,” on page 33
- “Update the Reference Database for vRealize Business Standard,” on page 43
- “Generate and Download the Support File,” on page 44
- “Update Licenses for vRealize Business Standard,” on page 44
- “Generate Token for vRealize Business Advanced and Enterprise Integration,” on page 45
- “Managing the Data Collectors,” on page 45
- “Calculating Depreciation of Server Hardware Cost,” on page 46
- “View and Update System Status,” on page 47

vRealize Business Standard Administration

Before you start using vRealize Business Standard, you must set up the vRealize Business Standard appliance to work in your virtual environment.

You can perform several operations on the Administration tab.

- Add vCenter Server to vRealize Business Standard by entering vCenter Server details.
- Add vCloud Director to vRealize Business Standard by entering vCloud Director details.
- Add EMC SRM servers to vRealize Business Standard by entering SRM details.
- Add public cloud accounts such as Amazon Web Services (AWS), Microsoft Azure, and VMware vCloud Air by entering their account details.
- Manage cloud providers for comparison purposes. You can add or edit public cloud accounts for comparison.
- Update the reference database to reflect the most current data. You can either update the reference database manually or by using the automatic update feature.
- Download the support file containing critical runtime information for troubleshooting the system.
- Update the license key.
- Generate a token that you can use to define a connection between vRealize Business Advanced and Enterprise and vRealize Business Standard.
- Manage the remote data collectors and enable connection to the remote data collectors.
- Set calculation preferences.

**Manage Private Cloud Connections**

You can manage private cloud connections such as vCenter Server, EMC Storage Resource Manager (SRM), and vCloud Director by adding, modifying and deleting them in your vRealize Business Standard setup.

**Manage vCenter Server Connections**

After you install vRealize Business Standard, you can add vCenter Server instances to vRealize Business Standard and retrieve the inventory information from your virtual environment. You can edit or delete vCenter Server instances from vRealize Business Standard. You can use the edit option to update the vCenter Server information when the vCenter Server certificate or the password changes.

**Prerequisites**

- Verify that you have vCenter Server details.
- Verify that you have additional vCenter Server user permissions, other than Read-only. To add additional permissions to the vCenter Server user, perform the following steps.
  a. Log in to vCenter Server as an administrator.
  b. Create a clone of the Read-only role in a vCenter Server.
  c. Include the Storage views.View and Profile-driven storage.Profile-driven storage view permissions to the clone.
  d. If you have integrated vCenter Server with VMware vRealize Operations Manager, include the Global.vCenter Operations User and Global.vRealize Operations Read Only permissions to the clone.
  e. Create a user in vCenter Server for vRealize Business Standard and assign this cloned role to the user.

**Procedure**

1. Log in to vRealize Automation or data collection manager:
   - To add a datasource to the vRealize Business Standard server directly, log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click Administration and Business Management.
   - To add a datasource to a data collector, log in to https://Remote_Data_Collector_IP_address:9443/dc-ui/login.html by using the root user credentials.

2. Click **Manage Private Cloud Connections**.
3. Select **vCenter Server**, and click the add option.
4. Enter the required details to add the instance.
5 Click **Save** and click **OK** in the Success dialog.

If the instance is not using SSL certificate from certificate authority, a dialog with untrusted SSL certificate is displayed.

**NOTE** vRealize Business Standard does not verify the revocation status of the SSL certificate. You must verify the status manually before accepting the certificate.

6 Click **Install**.

If the credentials are valid, the instance is added to the vRealize Business Standard.

**NOTE** If the SSL certificate changes after addition of instance into vRealize Business Standard, data collection might fail. This is because, the instance presents a new untrusted certificate. You can edit the instance and then accept the new certificate.

You can perform the same procedure to add multiple instances.

7 To edit the details, select the instance entry from the table, click the edit option, modify the details, click **Save** and click **OK** in the Success dialog.

8 To delete an instance, select the instance from the table, click the delete icon in the instance row and click **Delete** in the confirmation dialog box.

**NOTE** The changes in entities such as virtual machines, hosts and clusters due to addition or deletion of vCenter Server reflects on the vRealize Business Standard user interface only after a successful completion of cost calculation.

### Manage EMC SRM servers in vRealize Business Standard

You can add, edit and delete EMC Storage Resource Management (SRM) servers to vRealize Business Standard.

#### Prerequisites

Verify that you have the EMC SRM server user credentials.

#### Procedure

1 Log in to vRealize Automation or data collection manager:
   - To add a datasource to the vRealize Business Standard server directly, log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click **Administration** and **Business Management**.
   - To add a datasource to a data collector, log in to https://Remote_Data_Collector_IP_address:9443/dc-ui/login.html by using the root user credentials.

2 Click **Manage Private Cloud Connections**.

3 Select **Storage Server**, and click the add icon.

4 Enter the required details to add the instance.

5 Click **Save** and click **OK** in the Success dialog.

If the instance is not using SSL certificate from certificate authority, a dialog with untrusted SSL certificate is displayed.

**NOTE** vRealize Business Standard does not verify the revocation status of the SSL certificate. You must verify the status manually before accepting the certificate.
6 Click **Install**.

If the credentials are valid, the instance is added to the vRealize Business Standard.

**NOTE** If the SSL certificate changes after addition of instance into vRealize Business Standard, data collection might fail. This is because, the instance presents a new untrusted certificate. You can edit the instance and then accept the new certificate.

You can perform the same procedure to add multiple instances.

7 To edit the details, select the instance entry from the table, click the edit option, modify the details, click **Save** and click **OK** in the Success dialog.

8 To delete an instance, select the instance from the table, click the delete icon in the instance row and click **Delete** in the confirmation dialog box.

**Manage vCloud Director Connections**

You can add vCloud Director instances to vRealize Business Standard to get vCloud Director based categorization. You can edit or delete vCloud Director instances from vRealize Business Standard. You can use the edit functionality to update the vCloud Director information after certificate of vCloud Director changes.

If you add vCloud Director to vRealize Business Standard, you can categorize the data according to the vCloud Director hierarchy.

**Prerequisites**

Add vCenter Server instances that are managed by vCloud Director to vRealize Business Standard.

**Procedure**

1 Log in to vRealize Automation or data collection manager:
   - To add a datasource to the vRealize Business Standard server directly, log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click **Administration** and **Business Management**.
   - To add a datasource to a data collector, log in to https://Remote_Data_Collector_IP_address:9443/dc-ui/login.html by using the root user credentials.

2 Click **Manage Private Cloud Connections**.

3 Select **vCloud Director**, and click the add icon.

4 Enter the IP address, user name, and password of the vCloud Director instance.
   - Enter the IP address or the host name only, not the complete URL. Also, enter the credentials of the admin user with access to the full hierarchy of vCloud Director.

5 Click **Save** and click **OK** in the Success dialog.
   - If the instance is not using SSL certificate from certificate authority, a dialog with untrusted SSL certificate is displayed.

**NOTE** vRealize Business Standard does not verify the revocation status of the SSL certificate. You must verify the status manually before accepting the certificate.
6 Click Install.

If the credentials are valid, the instance is added to the vRealize Business Standard.

**Note** If the SSL certificate changes after addition of instance into vRealize Business Standard, data collection might fail. This is because, the instance presents a new untrusted certificate. You can edit the instance and then accept the new certificate.

You can perform the same procedure to add multiple instances.

7 To edit the details, select the instance entry from the table, click the edit option, modify the details, click Save and click OK in the Success dialog.

8 To delete an instance, select the instance from the table, click the delete icon in the instance row and click Delete in the confirmation dialog box.

### Manage Public Cloud Accounts

You can manage public cloud accounts such as Amazon Web Services (AWS), Microsoft Azure, VMware vCloud Air accounts in vRealize Business Standard. You can also compare these public cloud accounts.

### Manage VMware vCloud Air Connections

You can add vCloud Air accounts to vRealize Business Standard.

**Prerequisites**

Verify that you have a vCloud Air user credentials.

**Procedure**

1 Log in to vRealize Automation or data collection manager:
   - To add a datasource to the vRealize Business Standard server directly, log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click Administration and Business Management.
   - To add a datasource to a data collector, log in to https://Remote_Data_Collector_IP_address:9443/dc-ui/login.html by using the root user credentials.

2 Click Manage Hybrid & Public Cloud Connections.

3 Select vCloud Air and click the add option.

4 Enter the required details to add the instance.

5 Click Save and click OK in the Success dialog.

If the instance is not using SSL certificate from certificate authority, a dialog with untrusted SSL certificate is displayed.

**Note** vRealize Business Standard does not verify the revocation status of the SSL certificate. You must verify the status manually before accepting the certificate.
6 Click Install.

If the credentials are valid, the instance is added to the vRealize Business Standard.

**NOTE** If the SSL certificate changes after addition of instance into vRealize Business Standard, data collection might fail. This is because, the instance presents a new untrusted certificate. You can edit the instance and then accept the new certificate.

You can perform the same procedure to add multiple instances.

7 To edit the details, select the instance entry from the table, click the edit option, modify the details, click Save and click OK in the Success dialog.

8 To delete an instance, select the instance from the table, click the delete icon in the instance row and click Delete in the confirmation dialog box.

**Manage Amazon Web Services Accounts in vRealize Business Standard**

You can configure and add your AWS account in vRealize Business Standard to track your AWS cost.

**Configuring Amazon Web Services**

Before you add AWS to vRealize Business Standard, you need to configure an AWS account.

**NOTE** If you have upgraded vRealize Business Standard from a version prior to 6.1, you must reconfigure your AWS account.

For paying accounts, you must have the AWS account ID, access key, secret key, and S3 bucket name. For a linked account, you must have the AWS account ID, access key, and the secret key.

- You must have an AWS account name and account ID. For more information, see http://docs.aws.amazon.com/awsaccountbilling/latest/about/programaccess.html.

**IMPORTANT** The account ID is a 12 digit number (for example 1234-1234-1234) that you can see after you log in to the Web portal of an AWS account https://portal.aws.amazon.com/gp/aws/manageYourAccount. Do not use hyphens when you attempt to add or update the AWS account in vRealize Business Standard.

- You must have an access key and secret key for your AWS account. For more information, see http://docs.aws.amazon.com/general/latest/gr/managing-aws-access-keys.html.

- For paying accounts, you need to follow the programmatic billing access process after getting an access key and secret key so that you can build applications that reference your billing data from a CSV file stored in an Amazon S3 bucket. For more information about getting programmatic billing access, see http://docs.aws.amazon.com/awsaccountbilling/latest/about/programaccess.html.

- For paying accounts, you need to enable detailed billing report with resources and tags. You can use the report to organize and track your AWS costs. To get the report, first sign up for programmatic billing access, and then opt for the report. AWS publishes the report as a ZIP file to the Amazon S3 bucket you specify for Programmatic Billing Access. AWS publishes the report several times each day. The files are stored in your designated bucket using the following naming convention. 123456789012-aws-billing-detailed-line-items-with-resources-and-tags-yyyy-mm.csv.zip, where 123456789012 is account ID, yyyy is year, mm is month.

**NOTE** During the current billing period (monthly), AWS generates an estimated report. The current month's file is overwritten throughout the billing period until a final report is generated at the end of the billing period, and then, a new file is created for the next billing period. The final reports for the previous months remain in the designated Amazon S3 bucket.
(Optional) You can also tag your Amazon resources. Tags let you categorize your AWS resources in different ways, for example, by purpose, owner, or environment. When you apply tags to your AWS resources (for example, Amazon EC2 instances or Amazon S3 buckets), AWS generates the report as a comma-separated value (CSV) file with your usage and costs aggregated by your tags. You can apply tags that represent your business dimensions (such as cost centers, application names, or owners) to organize your costs across multiple services. Log into your account to activate the tags to appear in the report. When you select tag keys to include in your report, each key becomes an additional column and includes the value for each corresponding line item. You might use tags for more than just your report (for example, tags for security or operational reasons), and so, you can include or exclude individual tag keys for the report. After you apply tags, you can view the costs based on tags. For more information about tagging your Amazon resources, see http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/Using_Tags.html.

**NOTE** Verify that the bill is according to the format 123456789012-aws-billing-detailed-line-items-with-resources-and-tags-yyyy-mm.csv.zip are being generated in the S3 bucket that you have configured, and added the exact bucket name while adding the account in vRealize Business Standard.

### Manage Amazon Web Services Account

You can add or modify an AWS account that you want to track and analyze by using vRealize Business Standard.

**Prerequisites**

- Plan whether you want to add a paying account or a linked account.
- For a paying account - Verify that you have an account ID, access key, secret key and the S3 bucket name for the AWS account. Also, verify you have enabled detailed billing report with resources and tags in AWS.
- For a linked account - Verify that you have an account ID, access key, and secret key for the AWS account. Before you add a linked account, verify that you have added the paying account into vRealize Business Standard.

For more information, see vRealize Business Standard User’s guide.

**Procedure**

1. Log in to vRealize Automation or data collection manager:
   - To add a datasource to the vRealize Business Standard server directly, log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click Administration and Business Management.
   - To add a datasource to a data collector, log in to https://Remote_Data_Collector_IP_address:9443/dc-ui/login.html by using the root user credentials.
2. Click Manage Hybrid & Public Cloud Connections.
3. Select Amazon Web Services and click the add option.
4. Type the name, description, account ID, access key, secret key, and S3 bucket name (for paying account).
   - For paying account, ensure that the AWS user has the following required permissions.
     s3:Get*, s3:List*, ec2:Describe*
   - For non-paying account, AWS user must have the ec2:Describe* permission.
5 To set an account to be a paying account in vRealize Business Standard, select the **Is Paying account** option.

**NOTE** You must enable detailed billing report with resources and tags in AWS for the paying accounts.

6 Click **Save** and click **OK** in the Success dialog.

7 To edit the details, select the instance entry from the table, click the edit option, modify the details, click **Save** and click **OK** in the Success dialog.

8 To delete an instance, select the instance from the table, click the delete icon in the instance row and click **Delete** in the confirmation dialog box.

### Manage Microsoft Azure Accounts in vRealize Business Standard

You can create, modify, delete and configure a Microsoft Azure account through vRealize Business Standard. vRealize Business Standard analyzes and displays the cost information for your Microsoft Azure account.

**Prerequisites**

- You must have a Microsoft Azure Enterprise Agreement (EA) or non-EA account. A non-EA account can be a pay-as-you-go, MSDN, Monetary commitment or Monetary credit offer accounts.

- To add an EA account, note your 8-digit enrollment number by logging into Azure EA portal (https://ea.azure.com) as an EA administrator. Also, you must generate your primary API access key on the EA portal in the Manage Access section.

- To add a non-EA account, obtain the Client ID, see https://msdn.microsoft.com/en-us/library/dn877542.aspx. You must also know the Azure purchased location for the account. To get the location of purchase, login to Azure portal at https://account.windowsazure.com/Profile, and note the country code mentioned in the address such as IN, US, AU, CN, DE.

**Procedure**

1 Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.

2 Click the **Administration** tab.

3 Click **Business Management**.

4 Click **Manage Hybrid & Public Cloud Connections**.

5 Select **Microsoft Azure**.

6 Expand the Azure account type that you want to add.

- **Enterprise Agreement (EA)**

- **Non-Enterprise Agreement**

7 Click the add option icon to add an account and enter the required details.

- For an EA account, provide the following details.
  - Name/Description - Enter a name of your choice.
  - Enrollment Number - Enter your Azure enrollment number.
  - Usage API Access Key - Enter the API Access Key.

- For a non-Enterprise Agreement (EA) account, provide the following details.
  - Name/Description - Enter a name of your choice.
- Username - Enter the user name that you have registered with Azure to use the application.

  **NOTE** The user name is not the name that you have as an Azure account.

- Password - Enter the password for the username.

- Client ID - Enter the client ID that you have obtained from Microsoft Azure.

- Location of Purchase - Enter the country code of the Azure purchase location such as IN, US, AU, CN, DE.

8. Click **Save** and click **OK** in the Success dialog.

9. To edit the details, select the instance entry from the table, click the edit option, modify the details, click **Save** and click **OK** in the Success dialog.

10. To delete an instance, select the instance from the table, click the delete icon in the instance row and click **Delete** in the confirmation dialog box.

**Manage Public Cloud Providers Accounts for Comparison**

By default, you can see Amazon Web Services (AWS), Microsoft Azure and VMware vCloud Air are added in vRealize Business Standard. You can also add your own public cloud account to vRealize Business Standard and then compare the cost of virtual machine groups against the private cloud and with other public clouds like AWS, Azure, or vCloud Air.

**Prerequisites**

Verify that you have a DRL file or an XLS file with all the requisite information in the specified format to add your public cloud.

**Procedure**

1. Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.

2. Click the **Administration** tab.

3. Click **Business Management**.

4. Click **Manage Hybrid & Public Cloud Connections**.

5. Select **Cloud Providers for Comparison**, and click the add option icon.

6. In the **Add Cloud Provider** dialog box, update the cloud provider details.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Provider Name</td>
<td>(Optional) Type the cloud provider name.</td>
</tr>
<tr>
<td>URL</td>
<td>(Optional) Type the URL of the cloud provider.</td>
</tr>
<tr>
<td>Logo</td>
<td>(Optional) Upload the logo of your cloud provider.</td>
</tr>
<tr>
<td>Click to download the cloud provider comparison template</td>
<td>To download the template of the DRL or XLS file for updating the configuration of your cloud according to the specified format. For more information, the following topics:</td>
</tr>
<tr>
<td></td>
<td>- Update the DRL file for Cloud Comparison</td>
</tr>
<tr>
<td></td>
<td>- Update the XLS file for Cloud Comparison</td>
</tr>
<tr>
<td>Upload settings file</td>
<td>Click the <strong>Browse to locate the file</strong> link and select your configuration file.</td>
</tr>
</tbody>
</table>

7. Click **Save** and click **OK** in the Success dialog.
8 To modify the pricing of the existing cloud provider, perform the following steps.
   a Click the edit option.
   b Click the download current settings option.
   c Open the DRL or XLS file, make the required changes and save the file.
   d Click the Browse to locate the file link and select your configuration file.
   e Click Save to save your cloud provider details.

9 To delete an instance, select the instance from the table, click the delete icon in the instance row and click Delete in the confirmation dialog box.

If the DRL file or the XLS file is valid, the public cloud account is added to vRealize Business Standard.

What to do next
You can use this account in the Cloud Comparison tab to compare the cost of your cloud provider with other public cloud providers such as AWS, Azure, or vCloud Air.

Update the DRL file for Cloud Comparison
vRealize Business Standard provides you a template in the DRL and XLS format to enter the configuration of your cloud provider in a specific format. Based on your preference, you can download the template file to enter your cloud provider pricing information for comparison in vRealize Business Standard. The DRL template file provides more flexibility.

Prerequisites
Verify that you have the required details of your cloud provider to update the DRL template.

Procedure
1 Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2 Click the Administration tab.
3 Click Business Management.
4 Click Manage Hybrid & Public Cloud Connections.
5 Select Cloud Providers for Comparison, and click the add option icon.
6 To download the DRL template, in the Add Cloud Provider dialog box, click on the Click to download the cloud provider comparison template link.
Extract the downloaded ZIP file and open the DRL file (ComparisonProviderTemplate.drl) using an editor (for example, Notepad).

Each section in a DRL file is called as a rule. Each rule has a unique name. A DRL file can have two types of rules.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Matching Rule** | Defines which configuration is mapped to a specific instance from the cloud provider.  
For example, the following Azure DRL specifies the instance that must be mapped to an instance.  
rule “Azure_matching_A0”  
dialect “mvel”  
no-loop true  
When  
config : MatchingDetails( ramGb <= 0.75 && (cpuGhz * numOfCpu) <= 1.0)  
then  
config.addMatchingInstance("A0");  
End  
Where,  
- Azure_matching_A0 is the rule name.  
- when config : MatchingDetails( ramGb <= 0.75 && (cpuGhz * numOfCpu) <= 1.0) is the condition to map the workload to the instance type.  
- ramGb <= 0.75 and cpuGhz*numOfCpu <=1.0 is the condition to map to the instance type.  
- config.addMatchingInstance("A0") is the name to represent instance type.  
- MatchingDetails is the object with multiple fields that match the user configuration per virtual machine.  
The MatchingDetails supports the following fields:  
  - private Double ramGb;  
  - private Integer numOfCpu;  
  - private Double cpuGhz;  
  - private Boolean enforcePhysicalIsolation;  
  - private String instance;  
  - private Integer reservation;  
  - private String osGenericType;  
  - private Long configId;  
  - private List<String> possibleInstances;  
  - private StoragePriceSummaryDetails storage;  
  - private Double upTimePct;  
  - private Double cpuUtilization;  
  - private Double ramUtilization;  
  - public void addMatchingInstance(String instanceName); |
| **Pricing Rule** | Determines the price for the matched instance type.  
For example, the following Azure DRL specifies how to price a matching instance.  
rule “Azure_pricing_A0 WINDOWS”  
dialect “mvel”  
no-loop true  
when  
compute : ComputePriceDetails(instanceName == "A0"  
&& osGenericType == "WINDOWS")  
then
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>compute.setPrice(0.02,&quot;PER_HOUR&quot;);</td>
</tr>
<tr>
<td></td>
<td>compute.addAdditionalDetail(&quot;Price Plan&quot;,compute.getPricePlanLabel(),&quot;&quot;);</td>
</tr>
<tr>
<td>end</td>
<td></td>
</tr>
</tbody>
</table>

Where,
- **Azure_pricing_A0_WINDOWS** specifies how to price the Windows Azure Instance.
- **compute : ComputePriceDetails(instanceName == "A0" && osGenericType == "WINDOWS")** is the condition of when to map the workload to this rule.
- **instanceName == "A0"** is the name of the instance, which is A0 and the operating system, Windows or LINUX.
- **compute.setPrice(0.02,"PER_HOUR");** is defining the price per hour or month, which is 0.02 per each hour.
- **compute.addAdditionalDetail("Price Plan",compute.getPricePlanLabel(),"");** is the tool-tip or additional details.
- **ComputePricingDetails** is the object with multiple fields that match the user configuration per virtual machine.

The **ComputePricingDetails** supports the following fields:
- private String instance;
- private Integer pricePlan;
- private String osGenericType;
- private String region;
- private StoragePriceSummaryDetails storage;
- private Double reservationDiscount;
- private Map<String, AdditionalDetails> additionalDetails;
- private Double osLaborCost;
- private Map<String, AdditionalPriceDetails> additionalPrices;
- private boolean computeIncludesStorage;
- private boolean ignoreInTotalSum;
- private String providerRegion;
- public void setPrice(Double price, String unit, String providerRegion);
- public void addAdditionalDetail(String name, String value);

8 Update the matching rule or the pricing rule in the DRL template to define the rule for calculating the price of the cloud provider.

9 Save the updated DRL template file.

10 Click the **Browse to locate the file** link and select your configuration file.

11 Click **Save** to save your cloud provider details.

12 To modify the pricing of the existing cloud provider, perform the following steps.

   a Click the edit **icon**.

   b Click the download current settings **icon**.

   c Open the DRL file, make the required changes and save the file.

   d Click the **Browse to locate the file** link and select your configuration file.

   e Click **Save** to save your cloud provider details.
Now, your cloud provider is added to vRealize Business Standard to compare the price against other cloud providers.

**Update the XLS file for Cloud Comparison**

vRealize Business Standard provides you a template in the DRL and XLS format to enter the configuration of your cloud provider in a specific format. Based on your preference, you can download the template file to enter your cloud provider pricing information for comparison in vRealize Business Standard. The XLS template file is simple and easy to update.

**Prerequisites**

Verify that you have the required details of your cloud provider to update the XLS template.

**Procedure**

1. Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/ocac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Click Manage Hybrid & Public Cloud Connections.
5. Select Cloud Providers for Comparison, and click the add option icon.
6. To download the XLS template, in the Add Cloud Provider dialog box, click on the Click to download the cloud provider comparison template link.
7. Extract the downloaded ZIP file and open the ComparisonProviderTemplate XLS file.

   The XLS file contains three worksheets.
8 Enter the required details on each worksheet for calculating price of the cloud provider.

<table>
<thead>
<tr>
<th>Worksheet Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>instance</td>
<td>Use this worksheet to specify the matching configuration details for each instance type.</td>
</tr>
<tr>
<td></td>
<td>Instance name</td>
</tr>
<tr>
<td></td>
<td>CPU speed</td>
</tr>
<tr>
<td></td>
<td>Number of processors or cores</td>
</tr>
<tr>
<td></td>
<td>RAM memory</td>
</tr>
<tr>
<td></td>
<td>Operating System - Windows or LINUX</td>
</tr>
<tr>
<td></td>
<td>Term plan</td>
</tr>
<tr>
<td></td>
<td>Region - North America, ASIA, South America or Europe</td>
</tr>
<tr>
<td></td>
<td>Total storage size</td>
</tr>
<tr>
<td></td>
<td>Network Area Storage (NAS) size</td>
</tr>
<tr>
<td></td>
<td>Storage Area Network (SAN) size</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong> Update the storage values in the instance worksheet Only when the storage is packaged with compute from a pricing standpoint.</td>
</tr>
<tr>
<td></td>
<td>Instance price per unit time</td>
</tr>
<tr>
<td></td>
<td>Monthly operating system labor cost</td>
</tr>
<tr>
<td></td>
<td>Any additional price information or additional details for the instance</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong> The additional details are also displayed on the UI during comparison.</td>
</tr>
<tr>
<td>storage</td>
<td>Use this worksheet to specify storage configurations.</td>
</tr>
<tr>
<td></td>
<td>Storage type - NSA, SAN or total storage</td>
</tr>
<tr>
<td></td>
<td>Region - North America, ASIA, South America or Europe</td>
</tr>
<tr>
<td></td>
<td>Storage pricing values for each configuration, up to five levels</td>
</tr>
<tr>
<td>discount</td>
<td>Use this worksheet to specify the pricing range for availing discount and percentage of discount for a specific pricing range.</td>
</tr>
</tbody>
</table>

You can add multiple entries in each worksheet for different instances, storage configurations and discounts.

9 Save the updated XLS template file.

10 Click the **Browse to locate the file** link and select your configuration file.

11 Click **Save** to save your cloud provider details.

12 To modify the pricing of the existing cloud provider, perform the following steps.
   a Click the edit icon.
   b Click the download current settings icon.
   c Open the XLS file, make the required changes and save the file.
   d Click the **Browse to locate the file** link and select your configuration file.
   e Click **Save** to save your cloud provider details.

Now, your cloud provider is added to vRealize Business Standard to compare the price against other cloud providers.
Update the Reference Database for vRealize Business Standard

You can update the reference database to have the most updated version of the reference library. You can either update the references database manually or by running an auto-update feature. This reference database supplies values for cost calculations.

Prerequisites

For the auto update process, verify that either of the following ports are open for vRealize Business Standard to start the auto update process.

- Port 443, which connects to https://vrb-hub.vmware.com/manualupdate/welcome#
- Port 22, which connects to SaasFTP.digitalfuel.com

**Note**: If the auto update process fails to run on port 22 (FTP), the process starts on port 443 (HTTPS).

Procedure

1. Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the **Administration** tab.
3. Click **Business Management**.
4. Click **Update Reference Database**.
   The current version of reference library appears.
5. Perform one of the following to update the reference database.
   - If an auto update is available, run the auto update process.
     a. Click **Run Automatic Update** link.
     b. Accept the legal agreement.
   - To manually update the reference database, click **manual update process** link.
     a. Click **Generate and download file** link. An encrypted zip file with the required data is downloaded to your default download folder.
     b. Contact VMware customer support and provide them with the zip file that you have generated. Depending on the information that you have provided, an updated reference costs file will be generated for you.
     c. Click **Browse** and select the file.
     d. Click **Done**.

   The reference database is updated.

**Note**: Updating the reference database is not a one time process. The reference database will be updated periodically and VMware sends the update. Every time you see an update, you must perform the automatic or manual update process to update the reference database.
Generate and Download the Support File

You can download the support file, which contains critical runtime information about the system.

Procedure

1. Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Click Support File, and then click Generate and download file.
5. Save the file.

The support file is saved as an archive file.

Update Licenses for vRealize Business Standard

You can update the license of vRealize Business Standard by using the Update License option.

Procedure

1. Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Expand Update License to see the following license details.
   - vRealize Business current license key
   - License type - PERMANENT, EVALUATION or FIXED_EXPIRATION
   - Maximum number of virtual machines or maximum number of CPU package (socket) that the license key can support
   - Existing number of CPU package (socket) and number of virtual machines from private and public cloud accounts
   - Expiry date, if you are using the temporary license

   **Note**: If you have upgraded your vRealize Business Standard setup from a version prior to 6.1, you have to use the new license key. The earlier license key does not work after upgrade.

5. Enter the license key in the New license key text box.

   **Note**: You can also use the vRealize Business Standard, vRealize Business Advanced and Enterprise, and vCloud Suite license key to access vRealize Business Standard.

6. Click Update.

If the new license key is valid, the license is updated.
Generate Token for vRealize Business Advanced and Enterprise Integration

You can generate a token and vRealize Business Standard host URL from vRealize Business Standard. You can also download the certificate file that you can import in vRealize Business Advanced and Enterprise.

Procedure

1. Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Expand vRealize Business Integration, and click Generate a new vRealize Business token.
   vRealize Business Standard generates a token and vRealize Business Standard host URL.
5. Click Download Certificate file and select the location where you want to save the certificate file.
6. (Optional) Click Download all reports to download all the reports of vRealize Business Standard.

You can use this information to define a connection between vRealize Business Advanced and Enterprise and vRealize Business Standard.

What to do next

For detailed process of integration between vRealize Business Advanced and Enterprise and vRealize Business Standard, see vRealize Business Advanced and Enterprise Installation guide.

Managing the Data Collectors

You can manage remote data collectors by generating one time key to register with a vRealize Business Standard server and also view or delete registered data collectors.

Generate One Time Key for Remote Data Collection

To register your data collector with vRealize Business Standard, you must generate a one-time key in the vRealize Business Standard server.

Prerequisites

Verify that you have deployed and configured the data collector and a vRealize Business Standard server. See "Deploying a Remote Data Collector," on page 20.

Procedure

1. Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Click Manage Data Collection, and select Remote Data Collection.
5 Click the **Generate a new one time use key** link.  
You see a key on the Success dialog box.

**NOTE** The key is active for 20 minutes only.

6 Copy or note down the key.

7 Click **OK**.

**What to do next**
Log into the data collection manager of the remote data collector on the 9443 port and use the one-time key to register your collector. See “Register a Remote Data Collector with vRealize Business Standard Server,” on page 20.

**View the Registered Data Collectors**
You can register your remote data collectors with vRealize Business Standard and view the list of collectors registered on the vRealize Business Standard server.

**Prerequisites**

**Procedure**
1 Log in to the vRealize Automation interface at
   https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.

2 Click the **Administration** tab.

3 Click **Business Management**.

4 Click **Manage Data Collection**, and select **Manage Virtual Appliances**.  
You see a list of IP addresses of the virtual appliances that are registered with the vRealize Business Standard server.

5 (Optional) To unregister the virtual appliance from collecting data, click the **Untrust** link next to its IP address.

**NOTE** Even after you untrust the data collector from the vRealize Business Standard server, the data collector continues to collect the data and sends data to the server. However, the server discards the data from the data collector. To stop the data collection, you must shut down the data collector virtual appliance or stop the data collection service manually.

**Calculating Depreciation of Server Hardware Cost**
vRealize Business Standard calculates the yearly depreciation values of server hardware cost and then divides the value by 12 to arrive at the monthly depreciation.

vRealize Business Standard uses the salvage value of zero dollars.

\[
\text{depreciable cost} = \text{original cost}
\]

vRealize Business Standard uses the maximum value between yearly depreciation of declining balance with multiplied depreciation rate and yearly depreciation of straight line over five years.

\[
\text{Yearly depreciation} = \text{Max(}\text{yearly depreciation of double declining balance method, yearly depreciation of straight line method})
\]
This is the yearly depreciation of double declining balance method and yearly depreciation of straight line method.

**Table 3-1. Depreciation Methods**

<table>
<thead>
<tr>
<th>Method</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double declining</td>
<td>Depreciation rate = ( \frac{2}{\text{number of depreciation years}} )</td>
</tr>
<tr>
<td>balance</td>
<td>Yearly depreciation</td>
</tr>
<tr>
<td></td>
<td>■ In every year, except the last year of depreciation,</td>
</tr>
<tr>
<td></td>
<td>yearly depreciation = ( (\text{original cost} - \text{accumulated depreciation}) \times \text{depreciation rate} )</td>
</tr>
<tr>
<td></td>
<td>■ In the last year of depreciation,</td>
</tr>
<tr>
<td></td>
<td>yearly depreciation = ( \text{original cost} - \text{accumulated depreciation} )</td>
</tr>
<tr>
<td>Straight line</td>
<td>Yearly depreciation = ( \frac{\text{original cost} - \text{accumulated depreciation}}{\text{number of depreciation years}} )</td>
</tr>
</tbody>
</table>

You can set the depreciation period to two or seven years.

**View and Update System Status**

You can view and update the status of critical internal business processes to understand the overall system health. The system processes run at default defined intervals to ensure that your inventory and cost data are always up-to-date. You can modify these intervals by updating the respective job property in the `itfm.properties` file.

For information about how to modify the default job intervals, see “Configuring Default Job Intervals for Updating the System Status,” on page 48.

- Data collector connects to the vCenter Server instances and collects the inventory data and usage statistics. After collecting inventory data and usage statistics, vRealize Business Standard displays timestamp of the last executed job in local time. The vCenter Server data collection jobs are scheduled to run at default intervals.

- Storage collector connects to EMC SRM server instances and collects data and usage details. After completing the collection process, vRealize Business Standard server displays the details and timestamp of the process.

- Cost calculation involves the steps for computing base rates, allocated costs, cost for each virtual machine, and auto-generation of reports. Cost calculation occurs daily, but you can also trigger the process manually.

- vRealize Automation connector collects data about consumers of a virtual machine in terms of blueprints, provisioning groups and tenants from IaaS component of vRealize Automation, if IaaS is configured. vRealize Automation connection information appears only after you configure IaaS component of vRealize Automation.

- Public cloud connection connects to the configured vCloud Air and AWS accounts to collect inventory and usage data. Public cloud connection information appears only after you configure an account.

- vCloud Director connector connects to vCloud Director to collect data about consumers of the virtual machine according to organization and organization vDC. vCloud Director connection information appears only after you add vCloud Director to vRealize Business Standard.

You can also view and update cost calculation, vRealize Automation, vCloud Director, and public cloud connection information.
Procedure

1. Log in to the vRealize Automation interface at https://vRealize_Automation_host_name/cc/vcac/org/tenant_URL by using credentials of a tenant administrator.

2. Click Business Management.

3. Click Status.

   vRealize Business Standard displays the system status information. Information related to data collectors, cost calculation, vRealize Automation, public cloud connection, and vCloud Director connection is displayed.

   - You see the Green successful status ✔ icon, if all the processes are running correctly.
   - You see the Red unsuccessful status ❌ icon, if the mandatory jobs fail.
   - You see the Warning status ⚠ icon, if the non-mandatory jobs fail.

   **Note** By default, the vCenter Server data collection jobs like Inventory, Storage, Tags, and Usage statistics are set as critical jobs as these are mandatory for cost calculation and the vRealize Operations Manager synchronization job is set as non-mandatory.

   If there is a problem with any of the mandatory job processes, the system displays the Red status and if there is a problem with the non-mandatory jobs, the system displays warning status.

   However, you can change the set values for the job criticality by updating the following lines in the itfm.properties file.

   - To configure the Tags and Storage jobs as non-mandatory, add the following lines in the file.
     
     dc.job.critical.vc.tags = false
     dc.job.critical.vc.storage = false

   - To configure the vRealize Operations Manager synchronization job as mandatory, add the following line in the file.
     
     dc.job.critical.vc.vcops=true

4. (Optional) To run a process and update the cost data and connections, click Update now next to the respective process.

Configuring Default Job Intervals for Updating the System Status

The data collection from all endpoints is scheduled to run at default intervals. However you can modify the intervals by updating the respective job properties in the itfm.properties file.

Following table lists the jobs from all endpoints, its default intervals for data collection and the job property that you can use to modify the interval.

**Note** You can modify these intervals by updating the respective job property in the itfm.properties file present at the /usr/local/tcserver/vfabric-tc-server-standard/sharedconf location. For example, to run the storage data collection every one hour, update the storage job property to dc.job.interval.vc.storage = 60.
### Table 3-2. Data Collection Jobs

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Jobs</th>
<th>Default Intervals</th>
<th>Job Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>vCenter Server</td>
<td>Inventory</td>
<td>Immediately after an inventory update</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>Tags</td>
<td>Every 6 hours (360 minutes)</td>
<td>dc.job.interval.vc.tags</td>
</tr>
<tr>
<td>vRealize Operations Manager</td>
<td>Every 30 minutes</td>
<td>dc.job.interval.vc.vcops</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td>Every 12 hours (720 minutes)</td>
<td>dc.job.interval.vc.storage</td>
<td></td>
</tr>
<tr>
<td>Usage Statistics</td>
<td>Every 24 hours (1440 minutes)</td>
<td>dc.job.interval.vc.stats</td>
<td></td>
</tr>
<tr>
<td>EMC SRM</td>
<td></td>
<td>Every 24 hours (1440 minutes)</td>
<td>dc.job.interval.srm</td>
</tr>
<tr>
<td>vRealize Automation</td>
<td></td>
<td>Every 2 hours (120 minutes)</td>
<td>dc.job.interval.vra</td>
</tr>
<tr>
<td>Public cloud</td>
<td>AWS</td>
<td>Every 24 hours (1440 minutes)</td>
<td>dc.job.interval.aws</td>
</tr>
<tr>
<td></td>
<td>vCloud Air</td>
<td>Every 24 hours (1440 minutes)</td>
<td>dc.job.interval.vca</td>
</tr>
<tr>
<td>Azure</td>
<td></td>
<td>Every 24 hours (1440 minutes)</td>
<td>Note: You cannot configure Azure interval. You can manually trigger the job when required.</td>
</tr>
<tr>
<td>vCloud Director</td>
<td></td>
<td>Every hour (60 minutes)</td>
<td>dc.job.interval.vcd</td>
</tr>
</tbody>
</table>

**Note**: To run a data collection process immediately, click **Status** and click the **Update Now** option next to the respective process.

If a failure occurs during the data collection process, vRealize Business Standard retries to run the process maximum of five times, by default. You can modify the retry value by updating the `dc.failed.job.max.retry.count` parameter in the `itfm.properties` file.

For example, `dc.failed.job.max.retry.count = 3`.

And by default, vRealize Business Standard takes two minutes interval to retry the process. You can modify this value by updating the `dc.failed.job.retry.period` parameter in the `itfm.properties` file.

For example, `dc.failed.job.retry.period = 1`.
Troubleshooting vRealize Business Standard

You can troubleshoot vRealize Business Standard for some of the common problems that might occur when installing or using vRealize Business Standard.

This chapter includes the following topics:

- “vRealize Business Standard is Disconnected,” on page 51
- “Error While Accessing Business Management Tab,” on page 52
- “Business Management Tab Does not Appear,” on page 52
- “HTTP Error 500 on Business Management Tab,” on page 53
- “HTTP Error 401 Unauthorized Occurs While Accessing the Business Management Tab,” on page 53
- “vRealize Business Standard and vRealize Automation Connection Failure,” on page 54
- “vCenter Server Data Collection Failure,” on page 54
- “vCenter Server Status Shows Red,” on page 55
- “Data Collection Fails After vCenter Server Upgrade,” on page 55
- “The ESXi Server Cost is Doubled in vRealize Business Standard,” on page 56
- “vCloud Director-Based Categorization Issues,” on page 56
- “Virtual Machine Details Present in vCloud Director Are Not Displayed,” on page 56
- “AWS Account Addition Failure,” on page 57
- “Unable to Add EMC SRM Storage Servers,” on page 57
- “Storage Array Details Do Not Appear,” on page 58
- “The Computed LUN Rate Does Not Match the Actual Rate,” on page 59
- “vCenter Server Storage Synchronization Failure,” on page 60
- “Unable to Connect to vSphere or vApp Provisioned Resource With Internet Explorer,” on page 60
- “Issue with Filtering Reports,” on page 61

vRealize Business Standard is Disconnected

You are unable to connect to vRealize Business Standard connection.

Problem

After the vRealize Automation SSL certificate is updated, the connection to vRealize Business Standard is lost.
Cause
An administrator has replaced the self-signed certificate of vRealize Automation.

Solution

- Register your vRealize Business Standard server with vRealize Automation. For more information, see the Register vRealize Business Standard with vRealize Automation section.

Error While Accessing Business Management Tab

An error message is displayed when you attempt to access the Business Management tab after registering with vRealize Automation.

Problem

After registering vRealize Business Standard with vRealize Automation, if you click the Business Management tab in vRealize Automation user interface, an Error 404 message is displayed.

Solution

1. Log in to the vRealize Business Standard virtual machine.
2. Run the `monit restart itbm-server` command.
   The server restarts in 20 to 30 seconds. You can find the log file at `/var/log/vrb/itfm-server/itfm-server.log`.

Business Management Tab Does not Appear

After registering vRealize Business Standard with vRealize Automation, Business Management tab does not appear in the vRealize Automation user interface.

Problem

After registering vRealize Business Standard with vRealize Automation and adding Business Management or Tenant Controller role to the user, Business Management tab does not appear in the vRealize Automation user interface. No error is reported in the log file.

Cause

This issue might occur because of one of the following scenarios.

- When IaaS component of vRealize Automation is not available.
- When vRealize Automation data is cached on server.
Solution

- Perform one of the following steps.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| vRealize Automation IaaS component issue | a. Log in to vRealize Automation virtual appliance by using the root credentials.  
b. Create extension.properties file under /etc/vcac and hide the home page tab. shell.disabledExtensions=csp.home.  
   You can hide other tabs by using shell.disabledExtensions=<extension-id>[,<extension-id>].  
c. Restart the vRealize Automation virtual appliance.  
| vRealize Automation cache issue     | a. Log in to vRealize Automation through administrator@vsphere.local credentials.  
b. Edit user tenant and click Update.  
c. Log out and log in again as a tenant by using the tenant URL. |

HTTP Error 500 on Business Management Tab

When you click the Business Management tab, an error message occurs.

Problem

When you click the Business Management tab, an HTTP Error 500 is displayed.

Cause

vCenter Server virtual appliance SSO is not compatible with independent SSO virtual appliance.

Solution

- To fix the issue, see the KB2075011 knowledge base article.

HTTP Error 401 Unauthorized Occurs While Accessing the Business Management Tab

After registering vRealize Business Standard with vRealize Automation, when you click the Business Management tab, an error message occurs.

Problem

After registering vRealize Business Standard with vRealize Automation, if you click the Business Management tab in vRealize Automation user interface, an HTTP Error 401 Unauthorized message is displayed.

Cause

This problem occurs if the time is not synchronized between vRealize Automation Virtual Appliance and the vRealize Business Standard Virtual Appliance. The time difference between the vRealize Automation and vRealize Business Standard virtual appliances must not be more than 60 seconds.

Solution

1. Configure the same NTP servers on both vRealize Automation and vRealize Business Standard virtual appliances. For more information, see the Configure Time Synchronization section.
2. Restart the virtual appliances.
vRealize Business Standard and vRealize Automation Connection Failure

An error message is displayed after registering vRealize Business Standard with vRealize Automation.

Problem
After you register vRealize Business Standard with vRealize Automation and then if you navigate to Administration > Business Management java.net.NoRouteToHostException: No route to host error message is displayed.

Cause
This problem can occur if the IP address of vRealize Business Standard virtual appliance changed after vRealize Business Standard is registered with vRealize Automation.

Solution
2. Unregister vRealize Business Standard from vRealize Automation. For more information, see the Unregister vRealize Business Standard from vRealize Automation section.
3. Perform one of the following steps.
   - Remove vRealize Business Standard virtual appliance from your environment and deploy a new instance of vRealize Business Standard with static IP and fully-qualified domain name.
   - Re-create the SSL key store file (ssl.keystore) by performing the steps given in the Change or Replace SSL Certificate section.
4. Register vRealize Business Standard with vRealize Automation. For more information, see the Register vRealize Business Standard with vRealize Automation section.

vCenter Server Data Collection Failure

vRealize Business Standard is unable to collect data from vCenter Server.

Problem
- You see a synchronization failure message for vCenter Server in the Status menu.
- You see the following error message for vCenter Server in the Status menu:
  Unable to retrieve data from vROps <vrops_server_address>

Cause
- The vCenter Server, web services and profile driven services are not running under the same LocalSystem or domain account.
- The vRealize Operations Manager server is not reachable
- The vRealize Operations Manager API service is failing
- The vRealize Operations Manager server is on an HA clustered, multi-node environment and the node registered with vCenter Server is not reachable.
Solution

To resolve this problem, perform the applicable step out of the following solutions.

- Verify that all vCenter Server services such as, inventory, stats, and storage profiles run under the same user account.
- If the vCenter Server has been added to vRealize Operations Manager within the 24-hours, wait for vRealize Operations Manager to compute all data and then try data collection again.
- Check for any issues with the vRealize Operations Manager API service and resolve them.
- If the vRealize Operations Manager instance is a multi-node setup and if a new node has been deployed to replace the failed node, update the plugin on vRealize Operations Manager to register the new node with vCenter Server.

vCenter Server Status Shows Red

You see the Red icon for the vCenter Server status in vRealize Business Standard.

Problem

When you click the Status menu and expand the status for vCenter Server, the Red icon is displayed without any error details.

Cause

The time zone of the vRealize Business Standard virtual appliance is not in the UTC format.

Solution

1. Log in to the vRealize Business Standard virtual machine.
2. Change the time zone to a UTC format.
3. Run the `monit restart itbm-server` command.

Data Collection Fails After vCenter Server Upgrade

After upgrading vCenter Server, data collection fails.

Problem

After you upgrade your vCenter Server on Windows or vCenter Server virtual appliance to the 6.0 version, the vCenter Server data collection.

Cause

The earlier vCenter Server trusted certificate has changed, which has become obsolete.

Solution

1. Log in to the vRealize Automation interface at `https://vRealize_Automation_host_name/vcac/org/tenant_URL` by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Click Manage Private Cloud Connections.
5. Select vCenter Server and click the edit option icon next to the server that you want to modify.
6. Accept the new vCenter Server certificate.
The ESXi Server Cost is Doubled in vRealize Business Standard

Duplication of cost for ESXi hosts in vRealize Business Standard

**Problem**

vRealize Business Standard considers the cost of certain ESXi servers twice during cost calculation.

**Cause**

If you migrate ESXi hosts from one vCenter Server to another, without deleting the ESXi hosts from the first vCenter Server, the cost of the host is considered once from the source vCenter Server and once from the target vCenter Server.

**Solution**

- To avoid duplication of costs, delete the ESXi hosts from the vCenter Server after migration.

vCloud Director -Based Categorization Issues

After upgrade, vCloud Director - based categorization information is not displayed.

**Problem**

After upgrade, you might not see the organization constructs and the organization virtual data center constructs from vCloud Director instance.

**Cause**

This problem occurs if the vCloud Director server is down after upgrade, which does not run the cost calculation process.

**Solution**

1. Synchronize the vCloud Director process.
   - Click the Status menu, click Update Now next to vCloud Director.
   - Wait for the next automatic cost calculation process to complete. By default, the process runs every one hour.

2. Trigger the cost calculation.
   - Click Status and click the Update Now option to run the cost calculation process manually.
   - Wait for the next automatic cost calculation process to complete. By default, the process runs once in a day.

3. Under the Consumption section on the UI, verify for organization-based information.

   The information is displayed after successful cost calculation process.

Virtual Machine Details Present in vCloud Director Are Not Displayed

After you add vCloud Director to vRealize Business Standard, the virtual machine details that vCloud Director manages are not displayed.

**Problem**

Even after you add vCloud Director to vRealize Business Standard, the virtual machine details that vCloud Director manages are not displayed in vRealize Business Standard.
Cause
This problem occurs if you have not explicitly added the vCenter Server that are managed by vCloud Director to vRealize Business Standard.

Solution
- vCenter Server is the source of information and you must add it to vRealize Business Standard directly. For more information, see the *Manage vCenter Server Connections* section.

AWS Account Addition Failure
You are unable to add AWS account that you want to track and analyze by using vRealize Business Standard.

Problem
When you attempt to add an AWS account in the *Administration* tab, an AWS collection job error appears in the system status. Review the *itfm-server.log* file for more details about the error.

Cause
This issue might occur because one of the following reasons.
- When adding an account, the paying accounts are not marked as primary accounts.
- The AWS CSV file might be huge and exceeds the available storage on vRealize Business Standard virtual appliance.
- For paying accounts, you have not enabled the detailed billing report.
- You have used special characters in the account ID.
- The billing report is unavailable in the S3 bucket.
- You do not have permissions to add the account.

Solution
- To resolve this problem, perform the applicable step out of the following solutions.
  - Verify that the paying account is selected as a primary account while adding an account.
  - Enable the detailed bill option for the paying accounts.
  - Verify that the account ID does not contain any special characters.
  - Ensure that at least one billing report present in the S3 bucket follows the following naming convention: `123456789012-aws-billing-detailed-line-items-with-resources-and-tags-yyyy-mm.csv.zip`, where `123456789012` is account ID, `yyyy` is year, `mm` is month.
  - For a paying account, ensure that the AWS user has required permissions like `s3:Get*`, `s3:List*`, and `ec2:Describe*`. For a non-paying account, verify that the AWS user has the `ec2:Describe*` permission.

Unable to Add EMC SRM Storage Servers
You are unable to add an EMC SRM storage server to vRealize Business Standard.

Problem
You are unable add an EMC SRM storage server by using the *Administration* tab in vRealize Business Standard.
**Cause**

vRealize Business Standard is unable to communicate with EMC SRM server.

**Solution**

1. Ensure the SRM server URL is in the valid format as follows:
   
   `[protocol://]server[:port]`, where protocol and port are optional.
   
   - Protocol can be HTTP or HTTPS. The default protocol to run SRM is HTTPS protocol.
   
   - Port is the port number on which you want to run the SRM server. The default port number is 58443.

2. Verify that the SRM user has the permissions to access SRM reports and `ReportManagerService`.

---

**Storage Array Details Do Not Appear**

After you add the SRM servers to vRealize Business Standard, the storage array details do not appear.

**Problem**

- You see a synchronization failure message for EMC SRM servers in the **Status** option.
- After adding the EMC SRM servers, vRealize Business Standard does not display the storage array and its related details. No error is reported in the log file.

**Cause**

- vRealize Business Standard SRM storage data collection process is not complete.
- `ReportManagerService` might not be returning data.

**Solution**

1. To resolve the issue, perform the applicable step out of the following solutions.

   - Verify that the storage arrays are added to SRM.
   
   - Ensure that the vRealize Business Standard storage data collection is complete.
     
     By default, SRM storage data collection happens on daily basis.
2 Perform the following steps to verify the issue.

- After adding the SRM server to vRealize Business Standard, wait for a few hours to complete data collection. For more information about error details, see the /var/log/vrb/data-collector/itfm-srm-dc.log file.
- Verify whether SRM ReportManagerService is returning data by performing following steps.
  a Download and install SOAP user interface from http://www.soapui.org.
  b Configure ReportManagerService endpoint with a user ID and password at http://<SRM-server>/APG.
  c Invoke requests to verify the payload. `<xml version="1.0" encoding="UTF-8"?>
  <node xmlns="http://www.w3.org/2001/XMLSchema-instance"> 
  <valueNodeColumn name="Array Usable Capacity" filterExpression="(name=='ConfiguredUsableCapacity' | name=='NASFSCapacity') & ! (parttype)" period="3600" forcePeriod="never" timeThreshold="2"/>
  <nodeProperty name="Array Type" nodeProperty="arraytyp="/>
  </node>

The Computed LUN Rate Does Not Match the Actual Rate

The computed LUN rates are the same for all the LUNs and do not match the actual rate in vRealize Business Standard.

Problem

The computed LUN rates are the same for all the LUNs and do not match the actual rate in vRealize Business Standard.

Cause

The service level policies are not applied on LUNs.

Solution

1 Verify that the service level policies are defined in SRM.
2 Verify that the service level weightage is defined. For more information, see Edit Service Level Weightage in the vRealize Business Standard User’s Guide.
vCenter Server Storage Synchronization Failure

vRealize Business Standard does not collect data because of failure in the vCenter Server cost calculation process.

Problem

- You see the storage cost calculation failure message in the Status menu for vCenter Server.
- The vCenter Server storage service might fail and cause storage profiles not to appear in vRealize Business Standard.

Cause

This issue might occur because of one of the following scenarios.

- The Management Web services are not running on the vCenter Server.
- The vCenter Server user does not have all the following permissions.
  - Storage views.View and Profile-driven storage.Profile-driven storage view permissions
  - Global.vCenter Operations User permission, if vCenter Server is integrated with vRealize Operations Manager
- The Profile-driven Storage service is not running in vCenter Server.
- The vCenter Server web services and profile driven services are not running under the same LocalSystem or domain account.
- For vCenter Server virtual appliance, the OpenSSL heart-bleed patch is applied, but the vCenter Storage Monitoring Service certificates are not upgraded.
- The DB2 database issue.

Solution

- To fix the issue, see the KB2060967, KB2076692, KB2015180 knowledge base articles.

Unable to Connect to vSphere or vApp Provisioned Resource With Internet Explorer

An error message appears indicating that the virtual machine is not powered on or is not available on the network.

Problem

When you attempt to connect to a vSphere or vApp provisioned resource with Internet Explorer, you see an error message indicating that the virtual machine is not powered on or is not available on the network.

Solution

1. To define the virtual machine mode, log in to the Internet Information Services (IIS) machine as an administrator and navigate to C:\Program Files (x86)\VMware\vCAC\Server\Website\VMRC folder, and open vmrc.js with a file editor.
2. Search for
   var startup = function (modes, msgMode, advancedConfig) {
3. Add two lines to define modes and msgMode so that the content of the file appears as
   var startup = function (modes, msgMode, advancedConfig) {
     modes = 2;
     msgMode = 2;
4  Save and close the file.
5  Restart the IIS machine.

**Issue with Filtering Reports**

An error appears when you filter reports in vRealize Business Standard.

**Problem**

When you attempt to filter reports by using a long string as a filter criterion, an error appears.

**Solution**

- Change the HTTP connector size to **64000** or greater at `/usr/local/tcserver/vfabric-tc-server-standard/itbm-server/conf/server.xml` with `maxHttpHeaderSize="65536"`
Index

A
access user interface 23
accessing vRealize Business Standard 23
add AWS account 34, 35
add cloud provider 37
add EMC SRM servers 57
add vCenter Server 30
add vCloud Director 32, 56
add vCloud Server 56
administering vRealize Business Standard 29
Administration tab 57
Amazon Web Services integration 10
architecture 8
AWS 48
AWS account, addition 35
AWS account configuration 34
Azure API access key 36
Azure enrollment number 36
Azure purchase location 36

B
backing up 25
best practices 16
Business Management tab, error 52

C
capital expenditure 7
challenges 7
change SSL certificate 26
client ID 36
cloud comparison 38, 41
configure AWS 34
configure vRealize Business Standard 22
configuring NTP server 25
connections 30
cost efficiency 7
cost transparency 7
cost calculation 60
cost of delivering 7
cost optimization 7
country code 36

D
data collector 8, 20
data collectors 47
data collection 46, 48
data input synchronization 8
debugging 25
delete cloud provider 37
delete vCenter Server 30
delete vCloud Director 32
deploying vRealize Business Standard 17, 18
deployment scenarios 16
depreciation 46
disable SSH 27
disaster recovery 25
disk requirement 14
DNS, setting up 21
doubled cost value 56
DRL file 38
DRL template 37

E
EA account 36edit vCenter Server 30edit vCloud Director 32
EMC SRM array details 58
enable SSH 27
error, Business Management tab, error 52
error 404 52
error 401 53
error 500 53
ESXi requirement 15
ESXi servers 56
ESXi hosts migration 56
external interfaces 8

F
fault tolerance 25
filter report 61

G
goals, vRealize Business Standard 7

H
high availability 25

I
IaaS, vRealize Automation 16
improve operations 7
installation process 13
installing vRealize Business Standard 13
integration, vRealize Business Advanced and Enterprise 45
intended audience 5
inventory 47, 48
itfm.properties 48

J
job intervals 48
job properties 48

K
kb article 53
keystore 26

L
license key, update 29
license key, update 44
linked account 35
log files 44
logging 25
LUN rate 59

M
manage cloud provider 37
manage data collector 29
manage vCenter server 29
manage vCenter Server 30
manage vCloud Director 32
manage virtual appliances 46
memory requirement 14
Microsoft Azure 36
migrate 22
Migrator tab 22
monthly depreciation 46

N
non-EA account 36
NTP server, configure 25

O
one time key 45
one-time key 20, 45
operating expenditure 7
optimize operations 7
organization 56

P
paying account 35
permissions 60

port requirements 14
power on 60
public cloud 33, 48

R
redeploying vRealize Business Standard 24
reference database 8, 29, 43
reference library 43
register remote data collectors 45
register vRealize Business Standard 51
registration failure 54
remote data collector 17, 20, 45
remote data collectors 18, 20
ReportManagerService 57

S
SaaS support 17, 18, 20
service level policies 59
service level weightage 59
set up vRealize Business Standard 29
setting host name 21
setting DNS 21
space requirement 14
SRM 25, 31, 48
SRM users 57
SSL connection 14
SSL certificate 51
sso 53
SSO tenant 22
SSO admin user 22
SSO admin password 22
starting vApp 21
starting virtual machine 21
storage 48, 60
storage management 31
storage servers 30, 31
support file 44
support file download 29, 44
supported integrations 10
supported Chrome versions 15
supported Internet Explorer versions 15
supported Mozilla Firefox versions 15
supported web browsers 15
system administrator 25
system requirements 14
system status 48, 54, 55, 60

T
tags 48
time synchronization 53
toggle SSH setting 27
token generation 45
total expense 7

U
unregister vRealize Business Standard 24
untrust 46
update reference database 29
update system status 47
upgrade 22
usage statistics 48
using vRealize Automation user interface 23

V
vCenter Server 25, 48, 54, 55
vCenter server 30
vCenter Server certificate 30, 55
vCenter Server requirement 15
vCenter Server services 54
vCenter Server 6.0 upgrade 55
vCenter Server data collector 54
vCloud director 30
vCloud Director, management 32
vCloud Director, synchronization 56
vCloud Air 17, 18, 20, 33, 48
vCloud Automation Center connection failure 54
vCloud Director certificate 32
vCloud Director integration 10
vCloud Director, categorization 56
view system status 47
virtual appliances 53
virtual machine 56
virtualization requirements 15
vRealize Automation 48, 51
vRealize Automation standalone 16
vRealize Business Standard configuration 22
vRealize Automation integration 10
vRealize Business integration 29
vRealize Business Standard deployment 17
vRealize Business Standard installation 13
vRealize Business Standard redeployment 24
vRealize Business Standard server 8
vRealize Business Standard
  troubleshoot 51
troubleshooting 51
vRealize Business Standard system
  requirements 14
vSphere Web Service, access 14

X
XLS template 37, 38, 41

yearly depreciation 46