

vRealize Business for Cloud Install Guide

vRealize Business for Cloud Standard 7.1 and vRealize Business for Cloud Advanced 7.1
vRealize Business 7.1
vRealize Business for Cloud 7.1

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vRealize Business for Cloud Installation and Administration

The VMware[®] *vRealize Business for Cloud Installation and Administration* guide provides information about installing and configuring vRealize Business for Cloud.

Intended Audience

This information is intended for anyone who wants to install and configure vRealize Business for Cloud. 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 for Cloud

1

VMware vRealize Business for Cloud 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 for Cloud Goals,”](#) on page 7
- [“vRealize Business for Cloud 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 for Cloud Goals

vRealize Business for Cloud 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.

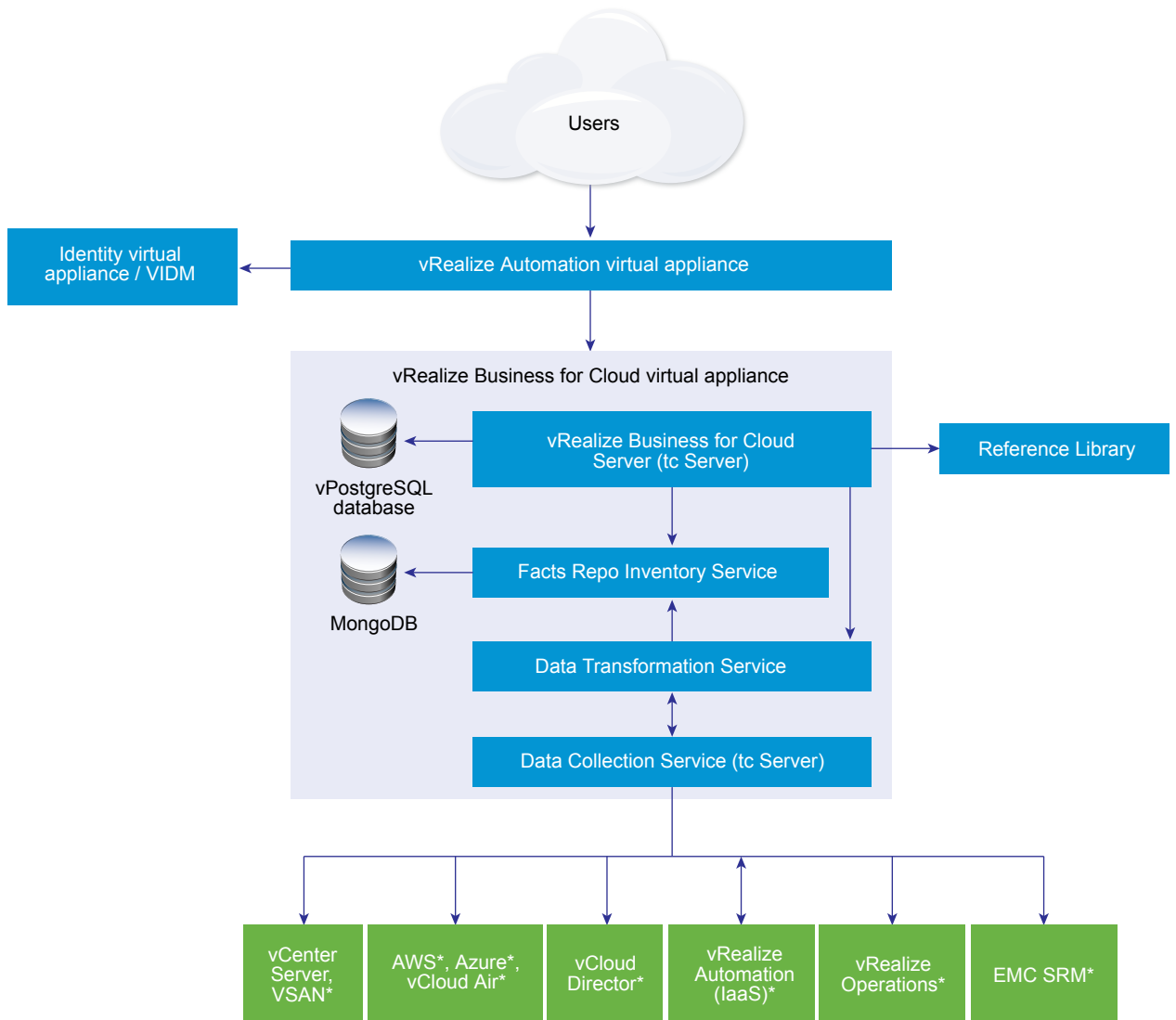
- Get accurate cost of virtual machines without performing any financial configuration.
- Provide cost visibility of storage and public cloud accounts.
- Support costing of non-ESXi physical servers managed by vRealize Automation.

vRealize Business for Cloud Architecture

vRealize Business for Cloud 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 for Cloud, the server, FactsRepo inventory service, data transformation service, data collection services, and reference database.

Figure 1-1. vRealize Business for Cloud Architecture



*Optional

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 for Cloud 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 for Cloud Server

vRealize Business for Cloud server is a web application that runs on Pivotal tc Server. vRealize Business for Cloud 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 for Cloud. 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 for Cloud.

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 for Cloud,”](#) on page 57.

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 for Cloud works

vRealize Business for Cloud 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.

Interface	Description
vRealize Automation	Calls vRealize Business for Cloud to get the cost profiles

Supported Product Integrations

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

VMware vRealize Operations Manager

vRealize Business for Cloud can integrate with vRealize Operations Manager 5.x and 6.x through a vCenter Server. In an integrated environment, vRealize Business for Cloud 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 for Cloud is integrated with vRealize Operations Manager 6.x, vRealize Business for Cloud 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 for Cloud is tightly integrated with vRealize Automation. vRealize Business for Cloud appears as a tab, named as **Business Management**, in the vRealize Automation user interface.

vRealize Business for Cloud 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 for Cloud to compute blueprint price of virtual machines.

vRealize Business for Cloud 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 for Cloud 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 for Cloud provides its users an overview of how their investments are spread across Amazon Web Services (AWS) and Microsoft Azure public cloud.

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

EMC Storage Resource Management

vRealize Business for Cloud 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 for Cloud supports EMC SRM 3.2 and later versions. Only the following EMC array families are supported: VNX, VMAX, ISILON, and VPLEX.

Installing vRealize Business for Cloud

2

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

This chapter includes the following topics:

- [“vRealize Business for Cloud System Requirements,”](#) on page 14
- [“vRealize Business for Cloud Deployment Scenarios and Best Practices,”](#) on page 15
- [“Deploy vRealize Business for Cloud Virtual Appliance on vSphere,”](#) on page 16
- [“Deploy vRealize Business for Cloud Virtual Appliance on vCloud Director,”](#) on page 18
- [“Deploying a Remote Data Collector,”](#) on page 20
- [“Register a Remote Data Collector with vRealize Business for Cloud Server,”](#) on page 21
- [“Start the vRealize Business for Cloud Appliance,”](#) on page 21
- [“Register vRealize Business for Cloud with vRealize Automation,”](#) on page 22
- [“Register vRealize Business for Cloud with VMware Identity Manager,”](#) on page 23
- [“Enabling Stand-Alone vRealize Business for Cloud for Local Users,”](#) on page 24
- [“Assign vRealize Business for Cloud Roles by using vRealize Automation,”](#) on page 24
- [“Assign vRealize Business for Cloud Roles by Using VMware Identity Manager,”](#) on page 25
- [“Unregister vRealize Business for Cloud from vRealize Automation,”](#) on page 26
- [“Unregister vRealize Business for Cloud From VMware Identity Manager,”](#) on page 27
- [“Managing vRealize Business for Cloud Virtual Appliance,”](#) on page 27
- [“Configure Time Synchronization,”](#) on page 30
- [“Change or Replace the SSL Certificate of vRealize Business for Cloud,”](#) on page 30
- [“Enable or Disable SSH Settings,”](#) on page 31
- [“Enable or Disable TLS,”](#) on page 31
- [“Join or Leave VMware Customer Experience Improvement Program for vRealize Business for Cloud,”](#) on page 32

vRealize Business for Cloud System Requirements

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

vRealize Business for Cloud Sizing and Server Specification Requirements

The vRealize Business for Cloud server requires a minimum of 50 GB of disk space, 8 GB memory, and 4 vCPU. If you are deploying only the remote data collector, without the vRealize Business for Cloud server, you can reduce the memory size to 2GB (**Properties > Hardware** tab).

Port Requirements

Following ports should be open for communication between different entities.

Source	Destination	Protocol	Port	Description
vRealize Automation	vRealize Business for Cloud	HTTPS	443	For user interface connections
vRealize Business for Cloud	vRealize Automation, vCenter Server, vCloud Director, vRealize Operations Manager, EMC SRM, vCloud Air, Amazon	HTTPS	443	For the vRealize Business for Cloud data collection from multiple systems.
vRealize Automation	vRealize Business for Cloud	SSH	22	For an external SSH connection
vRealize Business for Cloud Web console (browser)	vRealize Business for Cloud	HTTPS	5480	For the web management interface
vRealize Automation	vRealize Business for Cloud	HTTPS	5050	For pricing services
vRealize Business for Cloud	vCenter Server Inventory Service	HTTPS	10443	For a successful data collection NOTE The default port for inventory service is 10433. However, if it is configured with a different port, that port must be opened between vRealize Business for Cloud and vCenter Inventory service.
Data collection manager	vRealize Business for Cloud	HTTPS	9443	For logging into a remote data collection manager to register with vRealize Business for Cloud server, add data sources and manage data collectors.

Virtualization Software Requirements

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

Following are the requirements for vRealize Business for Cloud Deployment.

- VMware ESXi.
- VMware vCenter Server or vCloud Director for virtual appliance deployment.
- vRealize Automation or VMware Identity Manager for user management.

You can use vRealize Business for Cloud to manage the following VMWare products:

- vCenter Server

- vRealize Automation
- vRealize Operations Manager

To see the versions of these products that are compatible with vRealize Business for Cloud, see the [Interoperability Matrix](#).

Web Interface Support

You can access vRealize Business for Cloud on multiple browsers.

- 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 for Cloud 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 for Cloud user interface, zoom out the browser or increase the screen resolution.

vRealize Business for Cloud Deployment Scenarios and Best Practices

vRealize Business for Cloud is compatible with multiple versions of vRealize Automation. You can also deploy vRealize Business for Cloud 7.1 in a standalone mode leveraging external VMware Identity Manager, without vRealize Automation integration.

Deployment Scenarios

Following are the scenarios to deploy the vRealize Business for Cloud virtual appliance:

- Deploy vRealize Business for Cloud with vRealize Automation that is integrated with the IaaS component.
- Deploy vRealize Business for Cloud with standalone vRealize Automation, which does not have IaaS integration (use this approach if you do not own vRealize Automation).
- Deploy vRealize Business for Cloud with VMware Identity Manager.

Table 2-1. Deployment Scenarios

Scenario	Steps to perform
To deploy with vRealize Automation 6.2.3 and later 6.2.x	<ol style="list-style-type: none"> 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 for Cloud virtual appliance. 4 Register vRealize Business for Cloud with vRealize Automation. <p>NOTE If you are using vRealize Automation standalone version, apply the vRealize Automation license key provided on the vRealize Automation tab of the vRealize Business for Cloud virtual appliance.</p>
To deploy with vRealize Automation 7.x, and 7.0.x	<ol style="list-style-type: none"> 1 Deploy the vRealize Automation virtual appliance. 2 Deploy the vRealize Business for Cloud virtual appliance. 3 Register vRealize Business for Cloud with vRealize Automation. <p>NOTE If you are using vRealize Automation standalone version, apply the vRealize Business for Cloud license key in the vRealize Automation virtual appliance.</p>
To deploy with VMware Identity Manager	<ol style="list-style-type: none"> 1 Deploy the VMware Identity Manager virtual appliance. NOTE Installation of VMware Identity Manager does not require a license key. 2 Deploy the vRealize Business for Cloud virtual appliance. 3 Register vRealize Business for Cloud with VMware Identity Manager.

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 for Cloud in the same LAN where your vCenter Server setups are deployed.
- Configure Network Time Protocol (NTP) server in vRealize Business for Cloud, vCenter Server, VMware identity virtual appliance, and vRealize Automation, which ensures consistent reference time.

Deploy vRealize Business for Cloud Virtual Appliance on vSphere

You can deploy the vRealize Business for Cloud virtual appliance by using a vSphere client on the vCenter Server. The vRealize Business for Cloud virtual appliance will be in the OVA format.

Prerequisites



Download and Install vRealize Business for Cloud 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 for Cloud System Requirements,” on page 14.

- If you plan to use the vRealize Automation integrated vRealize Business for Cloud setup, verify that you have deployed and configured the vRealize Automation virtual appliance in your cloud environment. See *vRealize Automation documentation*.
- If you plan to use the vRealize Business for Cloud standalone setup, verify that you have deployed and configured VMware Identity Manager in your cloud environment. See *VMware Identity Manager documentation*.

NOTE Installation of VMware Identity Manager does not require a license key.

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.

Currency Name	Abbreviation
Australian Dollar	AUD
Brazilian Real	BRL
Canadian Dollar	CAD
Columbian Pest	COP
China Yuan Renminbi	CNY
Danish Krone	DKK
Euro	EUR
British Pound	GBP
Hong Kong Dollar	HKD
Indonesia Rupiah	IDR
Israeli Shekel	ILS
Indian Rupee	INR
Japanese Yen	JPY
Korean (South) Won	KRW
Mexican Peso	MXN

Currency Name	Abbreviation
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
Taiwan New Dollar	TWD
Thai Baht	THB
Turkey Lira	TRY
US Dollar	USD
South Africa Rand	ZAR

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

- To deploy the vRealize Business for Cloud server, select the **Enable Server** option. If you are deploying only a data collector for remote access, deselect this option.
- Select the **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 Secure Socket Shell (SSH) from the vRealize Business for Cloud web console. See [“Enable or Disable SSH Settings,”](#) on page 31.
- Select the **Join the VMware Customer Experience Improvement Program** option to allow VMware to collect technical details about vRealize Business for Cloud usage. This information is automatically collected every seven days.
- 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 for Cloud virtual appliance might take a few minutes.

What to do next

Start your appliance. See [“Start the vRealize Business for Cloud Appliance,”](#) on page 21.

Deploy vRealize Business for Cloud Virtual Appliance on vCloud Director

To install vRealize Business for Cloud 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 for Cloud System Requirements](#),” on page 14.
- If you plan to use the vRealize Automation integrated vRealize Business for Cloud setup, verify that you have deployed and configured the vRealize Automation virtual appliance in your cloud environment. See *vRealize Automation documentation*.
- If you plan to use the vRealize Business for Cloud standalone setup, verify that you have deployed and configured VMware Identity Manager in your cloud environment. See *VMware Identity Manager documentation*.

NOTE Installation of VMware Identity Manager does not require a license key.

- 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 for Cloud.
- 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.

Currency Name	Abbreviation
Australian Dollar	AUD
Brazilian Real	BRL
Canadian Dollar	CAD
Columbian Pesto	COP
China Yuan Renminbi	CNY
Danish Krone	DKK
Euro	EUR
British Pound	GBP
Hong Kong Dollar	HKD
Indonesia Rupiah	IDR
Israeli Shekel	ILS
Indian Rupee	INR
Japanese Yen	JPY
Korean (South) Won	KRW
Mexican Peso	MXN
Malaysia Ringgit	MYR

Currency Name	Abbreviation
Norway Krone	NOK
New Zealand Dollar	NZD
Russia Ruble	RUB
Saudi Arabian Riyal	SAR
Sweden Krona	SEK
Swiss Franc	CHF
Singapore Dollar	SGD
Taiwan New Dollar	TWD
Thai Baht	THB
Turkey Lira	TRY
US Dollar	USD
South Africa Rand	ZAR

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

- To deploy the vRealize Business for Cloud server, select the **Enable Server** option. If you are deploying only a data collector for remote access, deselect this option.
 - Select the **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 Secure Socket Shell (SSH) from the vRealize Business for Cloud web console. See [“Enable or Disable SSH Settings,”](#) on page 31.
 - Select the **Join the VMware Customer Experience Improvement Program** option to allow VMware to collect technical details about vRealize Business for Cloud usage. This information is automatically collected every seven days.
- 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 for Cloud 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

Start your appliance. See [“Start the vRealize Business for Cloud Appliance,”](#) on page 21.

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 for Cloud . By default, the vRealize Business for Cloud 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 for Cloud server.

NOTE Azure is not a part of remote data collection, so you cannot add an Azure account from the remote data collector.

Register a Remote Data Collector with vRealize Business for Cloud Server

After you deploy a remote data collector, you must register it with a vRealize Business for Cloud 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 for Cloud server.
- Verify that you have generated a one-time key on vRealize Business for Cloud server. See [“Generate One Time Key for Remote Data Collection,”](#) on page 60.

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 for Cloud server.
- 4 Enter or paste the one-time key that you have generated on vRealize Business for Cloud.
- 5 Click **Update**.

What to do next

Add data sources to the remote data collector, see [“Manage Private Cloud Connections,”](#) on page 42 or add public cloud accounts, see [“Manage Public Cloud Accounts,”](#) on page 45.

Start the vRealize Business for Cloud Appliance

You must start the vRealize Business for Cloud 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 for Cloud 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 for Cloud 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_for_Cloud_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 for Cloud Web console opens in the browser.

What to do next

For the first time deployment users, register your vRealize Business for Cloud virtual appliance.

Register vRealize Business for Cloud with vRealize Automation

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



Register vRealize Business for Cloud with vRealize Automation
(http://link.brightcove.com/services/player/bcpid2296383276001?bctid=ref:video_register_vrealize_business_standard_assign_roles)

Prerequisites

- Verify that you have deployed vRealize Business for Cloud and started the virtual appliance.
Verify that you have deployed and configured the vRealize Automation virtual appliance in your cloud environment.
- Configure Network Time Protocol (NTP) server in vRealize Business for Cloud and vRealize Automation, which ensures consistent reference time.

Procedure

- 1 Log in to the vRealize Business for Cloud Web console at `https://vRealize_Business_for_Cloud_IP_address:5480`.
- 2 On the **Registration** tab, select **vRA**.
- 3 Enter the credentials to register with vRealize Automation server.

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

- 4 Register vRealize Business for Cloud with vRealize Automation.

Option	Action
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) Click the 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, the Registered with vRealize Automation server message appears.

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

Register vRealize Business for Cloud with VMware Identity Manager

You can register vRealize Business for Cloud with VMware Identity Manager for authenticating and authorizing the users to access vRealize Business for Cloud in the stand-alone mode, without vRealize Automation integration.

Prerequisites

- Verify that you have deployed vRealize Business for Cloud and started the virtual appliance.
Verify that you have must deployed VMware Identity Manager virtual appliance and have the administrator access.
- If you have already registered vRealize Business for Cloud with vRealize Automation, you must first unregister from vRealize Automation.

Procedure

- 1 Log in to the vRealize Business for Cloud Web console at https://vRealize_Business_for_Cloud_IP_address:5480.
- 2 On the **Registration** tab, select **vIDM**.
- 3 Enter the credentials to register with the VMware Identity Manager virtual appliance.

Option	Description
vIDM Hostname	Enter the host name or IP address of the VMware Identity Manager virtual appliance.
vIDM User	Enter the administrator user name that you have defined while configuring your VMware Identity Manager.
vIDM Password	Enter the administrator password that you have defined while configuring your VMware Identity Manager.

- 4 (Optional) Click the **View vIDM Certificate** link.
- 5 Click **Register**.

If all the parameters are correct, the Registration with VIDM successful message appears.

VMware Identity Manager authenticates and authorizes the registered user to access vRealize Business for Cloud.

Enabling Stand-Alone vRealize Business for Cloud for Local Users

You can enable the local users to access vRealize Business for Cloud and assign the required roles.

NOTE VMware recommends you to use vRealize Business for Cloud that is integrated with either vRealize Automation or VMware Identity Manager.

Prerequisites

- Verify that you have deployed vSphere or vCloud Director.
- Verify that you have deployed vRealize Business for Cloud on vSphere or vCloud Director. See, “Deploy vRealize Business for Cloud Virtual Appliance on vSphere,” on page 16 or “Deploy vRealize Business for Cloud Virtual Appliance on vCloud Director,” on page 18.
- Verify that you have started the virtual appliance. See, “Start the vRealize Business for Cloud Appliance,” on page 21.
- Verify that you have enabled the Secure Socket Shell (SSH) service. See, “Enable or Disable SSH Settings,” on page 31.

Procedure

- 1 Log in to SSH with the root user credentials.
If you are using the Windows platform, log in to SSH using a Windows SSH tool. For example, Putty.
- 2 Navigate to the `/usr/ITFM-Cloud/va-tools/bin` folder.
For example, `cd /usr/ITFM-Cloud/va-tools/bin`
- 3 Run the following command:
`sh manage-local-user.sh`
- 4 Press **5** to select the `Enable local authentication` option.
Now, all services will restart, which might take few minutes.
- 5 Log in to vRealize Business for Cloud instance as root user at https://DNS_ID.eng.vmware.com/itfm-cloud/login.html.
- 6 To allow the local operating system user to access vRealize Business for Cloud, perform the following steps on the SSH console.
 - a Run the `sh manage-local-user.sh` command.
 - b Press **1** to add the user.
 - c Enter the user name and password.
 - d Enter the role name to assign appropriate vRealize Business for Cloud roles.
 - `VCBM_ALL`, which has the administrator privileges.
 - `VCBM_VIEW`, which has the read-only privileges.

Assign vRealize Business for Cloud Roles by using vRealize Automation

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

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

Prerequisites

Verify that you have created a vRealize Business for Cloud 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 **Directory Users and 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**.

NOTE You must have the **Business Management Administrator** role to access vRealize Business for Cloud.

Assign vRealize Business for Cloud Roles by Using VMware Identity Manager

You must assign the vRealize Business for Cloud roles to the users in the VMware Identity Manager to access vRealize Business for Cloud standalone user interface.

Prerequisites

Verify that you have deployed VMware Identity Manager and have the administrator access. For more information, see *VMware Identity Manager documentation*.

Procedure

- 1 Log in to the VMware Identity Manager virtual appliance at https://VMware_Identity_Manager_hostname as an administrator.
- 2 Click **Users & Groups**.
You can see the following vRealize Business for Cloud roles in the list.
 - **VCBM_ALL**, which has the administrator privileges.
 - **VCBM_VIEW**, which has the read-only privileges.
- 3 Click on the vRealize Business for Cloud role that you want to assign to a user.
- 4 Select **Users in This Group** and click **Modify Users in This Group**.
- 5 Enter the user name to search a user to which you want to add a role and select the user name.
- 6 Click **Next**.
You see the name of the user under the Users Being Added section.
- 7 Click **Save**.
You can see the user name added to the Users in this Group table.
- 8 Log in to vRealize Business for Cloud at https://vRealize_Business_for_Cloud_host_name/itfm-cloud as an administrator.
- 9 Enter a valid license key and click **Save**.

NOTE You must have the **VCBM_ALL** role for the first vRealize Business for Cloud login.

Unregister vRealize Business for Cloud from vRealize Automation

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

Procedure

- 1 Log in to the vRealize Business for Cloud Web console, https://vRealize_Business_for_Cloud_IP_address:5480.
- 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.

Component	Description
Hostname	The host name or IP address of the vRealize Automation virtual appliance.
SSO Default Tenant	The name of the SSO default tenant that you have defined while configuring your vRealize Automation virtual appliance.
SSO Admin User	The administrator user name that you have defined while configuring your vRealize Automation virtual appliance.
SSO Admin Password	The administrator password that you have defined while configuring your vRealize Automation virtual appliance.

- 4 Click **Unregister**.

If all the parameters are correct, an **Unregistered with vRealize Automation server** message is displayed.

Unregister vRealize Business for Cloud From VMware Identity Manager

If you want to deploy a new version of vRealize Business for Cloud appliance, you need to first unregister the earlier instance of vRealize Business for Cloud appliance from VMware Identity Manager.

Procedure

- 1 Log in to the vRealize Business for Cloud Web console, https://vRealize_Business_for_Cloud_IP_address:5480.
- 2 Type the user name and password of the virtual appliance and click **Login**.
- 3 On the **Registration** tab, select **vIDM**.
- 4 Enter the credentials to register with the VMware Identity Manager virtual appliance.

Option	Description
vIDM Hostname	Enter the host name or IP address of the VMware Identity Manager virtual appliance.
vIDM User	Enter the administrator user name that you have defined while configuring your VMware Identity Manager.
vIDM Password	Enter the administrator password that you have defined while configuring your VMware Identity Manager.

- 5 Click **Unregister**.

If all the parameters are correct, an Unregistered with VIDM message is displayed.

Managing vRealize Business for Cloud Virtual Appliance

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

Backup and Restore the vRealize Business for Cloud Virtual Appliance

To minimize system downtime and data loss in the event of failures, administrators can back up the vRealize Business for Cloud 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 for Cloud 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 for Cloud 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 for Cloud through vCenter Server and Site Recovery Manager.

vRealize Business for Cloud does not have an in-built high availability or fault tolerance capabilities. However, you can deploy vRealize Business for Cloud 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 for Cloud 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.

Export the vRealize Business for Cloud Log Files

You can configure the vRealize Business for Cloud log files to send the details to the system log servers such as vRealize Log Insight for analyzing the operational visibility and provide faster troubleshooting procedure.

Prerequisites

- You must be an vRealize Business for Cloud administrator.
- For TCP Syslog Appender, download the certificate of the system log server, create a TrustStore and add the certificate to the newly created TrustStore. For more information, see <https://docs.oracle.com/cd/E19509-01/820-3503/6nf1il6er/index.html>.

Procedure

- 1 Log into vRealize Business for Cloud by using the system administrator credentials.
- 2 Open the log4j2.xml file from the /usr/local/tcserver/vfabric-tc-server-standard/itbm-server/webapps/itfm-cloud/WEB-INF/classes/ location.
- 3 Select the relevant data delivery format.
 - Non-Secured Syslog Appender - BSD Format
 - Non-Secured Syslog Appender - RFC5424 Format
 - Secured TCP Syslog Appender

- 4 Add or update the following lines in the <Appenders> tag.

Option	Description
For BSD Format	<code><Syslog name="BSDSyslogAppender" host="SYSLOG_SERVER_HOST" port="SYSLOG_SERVER_PORT" protocol="TCP"/></code>
For RFC5424 format	<code><Syslog name="RFC5424SyslogAppender" format="RFC5424" host="10.23.216.36" port="SYSLOG_SERVER_PORT" protocol="UDP" appName="vRB" mdcId="mdc" includeMDC="true" facility="LOCAL0" enterpriseNumber="12345" newLine="true" messageId="Audit" id="vRBApp"/></code>
For TCP Syslog Appender	<p>a Copy the TrustStore with the system log server certificate to the vRealize Business for Cloud virtual appliance.</p> <p>b Add or update the following lines in the <Appenders> tag.</p> <pre> <Syslog name="securedSyslogAppender" host="SYSLOG_SERVER_HOST" port="SYSLOG_SERVER_PORT" protocol="UDP" appName="vRB" mdcId="mdc" includeMDC="true" facility="LOCAL0" enterpriseNumber="12345" newLine="true" messageId="Audit" id="vRBApp"> <SSL> <TrustStore location="TRUSTSTORE_PATH" password="TRUSTSTORE_PASSWORD"/> </SSL> </Syslog> </pre>

NOTE The port number for vRealize Log Insight is 6514. You can change the port number based on the log server that you want to use.

- 5 Update the following line in the <Root> tag.

NOTE In some of the log files, the AppenderRef tag is Appender-Ref. Do not change the parameter name.

- For BSD format - `<AppenderRef ref="BSDSyslogAppender"/>`
- For RFC5424 format - `AppenderRef ref="RFC5424SyslogAppender"/>`
- For TCP Syslog Appender - `<AppenderRef ref="securedSyslogAppender"/>`

- 6 Perform the same changes to the log4j2.xml file in the following locations.

- `/usr/local/tcserver/vfabric-tc-server-standard/itbm-server/webapps/itfm-cloud-dc-transformer/WEB-INF/classes/log4j2.xml`
- `/usr/local/tcserver/vfabric-tc-server-standard/itbm-data-collector/webapps/itfm-cloud-vca-dc/WEB-INF/classes/log4j2.xml`
- `/usr/local/tcserver/vfabric-tc-server-standard/itbm-data-collector/webapps/itfm-cloud-vc-dc/WEB-INF/classes/log4j2.xml`
- `/usr/local/tcserver/vfabric-tc-server-standard/itbm-data-collector/webapps/itfm-cloud-srm-dc/WEB-INF/classes/log4j2.xml`
- `/usr/local/tcserver/vfabric-tc-server-standard/itbm-data-collector/webapps/itfm-cloud-vcd-dc/WEB-INF/classes/log4j2.xml`
- `/usr/local/tcserver/vfabric-tc-server-standard/itbm-data-collector/webapps/itfm-cloud-aws-dc/WEB-INF/classes/log4j2.xml`
- `/usr/local/tcserver/vfabric-tc-server-standard/itbm-data-collector/webapps/itfm-cloud-vra-dc/WEB-INF/classes/log4j2.xml`

- 7 Restart your vRealize Business for Cloud server.

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

- 1 Log in to the vRealize Business for Cloud Web console, https://vRealize_Business_for_Cloud_IP_address:5480.
- 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.

Option	Action
Disable	Select this option to disable time synchronization. NOTE Server time must be synchronized to ensure the correct operation.
Use ESXi Host Time	Select this option to use your ESXi host server time. You must configure your ESXi server time before you use this option.
Use Time Server	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.

- 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 for Cloud

After deployment, you can replace vRealize Business for Cloud 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

- 1 Log in to the vRealize Business for Cloud Web console, https://vRealize_Business_for_Cloud_IP_address:5480.
- 2 Unregister vRealize Business for Cloud from vRealize Automation or VMware Identity Manager.
- 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.

Option	Action
Generate a self-signed certificate	<ol style="list-style-type: none"> 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	<p>To import the certificate, verify that your certificate matches the following requirements:</p> <ul style="list-style-type: none"> ■ Keysize: 2048 ■ Algorithm: RSA ■ The distinguished name provided in the certificate must be reachable over network. <ol style="list-style-type: none"> 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 for Cloud with vRealize Automation or VMware Identity Manager.

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 for Cloud 7.0 virtual appliance.

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

Procedure

- 1 Log in to the vRealize Business for Cloud Web console, https://vRealize_Business_for_Cloud_IP_address:5480 as an administrator.
- 2 On the **Administration** tab, select **Administration**.
- 3 Click **Toggle SSH setting** to enable or disable the SSH settings.

Enable or Disable TLS

You can add or remove a version of Transport Layer Security (TLS) to access vRealize Business for Cloud.

Prerequisites

Deploy vRealize Business for Cloud and have administrator access.

Procedure

- 1 Log into vRealize Business for Cloud by using the system administrator credentials.
- 2 Run the `monit stop itbm-server` command.
- 3 Run the `monit stop pricing-api` command.

- 4 To disable TLS 1.0 version, run the following commands:
 - a `sed -i 's/sslEnabledProtocols=.*sslEnabledProtocols="TLSv1.1, TLSv1.2"/g' /usr/local/tcserver/vfabric-tc-server-standard/itbm-server/conf/server.xml`
 - b `sed -i 's/sslEnabledProtocols=.*sslEnabledProtocols=TLSv1.1, TLSv1.2/g' /usr/local/pricing-api/conf/application.properties`
- 5 If you are using vRealize Business for Cloud 7.1 or earlier versions that is integrated with vRealize Automation, add the following line to disable TLS 1.0:

Action	File Location
- Djdk.tls.client.protocols=TLSv1.1,TLSv1.2 \	<ul style="list-style-type: none"> ■ /usr/sbin/itfm-config (Below <code>-Dsecurity.properties=\$CATALINA_BASE/conf/security.properties \</code>) ■ /usr/sbin/itfm-config-unregister (Below <code>-Dsecurity.properties=\$CATALINA_BASE/conf/security.properties \</code>)
- Djdk.tls.client.protocols=TLSv1.1,TLSv1.2	<ul style="list-style-type: none"> ■ /usr/local/tcserver/vfabric-tc-server-standard/itbm-server/bin/setenv.sh (Below <code>-Dsecurity.properties=\$CATALINA_BASE/conf/security.properties</code>) ■ /usr/local/tcserver/vfabric-tc-server-standard/itbm-data-collector/bin/setenv.sh (Below <code>-Dsecurity.properties=\$CATALINA_BASE/conf/security.properties</code>)

- 6 To enable TLS 1.0 version, run the following commands:
 - a `sed -i 's/sslEnabledProtocols=.*sslEnabledProtocols=" TLSv1, TLSv1.1, TLSv1.2"/g' /usr/local/tcserver/vfabric-tc-server-standard/itbm-server/conf/server.xml`
 - b `sed -i 's/sslEnabledProtocols=.*sslEnabledProtocols= TLSv1, TLSv1.1, TLSv1.2/g' /usr/local/pricing-api/conf/application.properties`
- 7 If you are using vRealize Business for Cloud 7.1 or earlier versions that is integrated with vRealize Automation, remove the following line to enable TLS 1.0:

Action	File Location
- Djdk.tls.client.protocols=TLSv1.1,TLSv1.2 \	<ul style="list-style-type: none"> ■ /usr/sbin/itfm-config (Below <code>-Dsecurity.properties=\$CATALINA_BASE/conf/security.properties \</code>) ■ /usr/sbin/itfm-config-unregister (Below <code>-Dsecurity.properties=\$CATALINA_BASE/conf/security.properties \</code>)
- Djdk.tls.client.protocols=TLSv1.1,TLSv1.2	<ul style="list-style-type: none"> ■ /usr/local/tcserver/vfabric-tc-server-standard/itbm-server/bin/setenv.sh (Below <code>-Dsecurity.properties=\$CATALINA_BASE/conf/security.properties</code>) ■ /usr/local/tcserver/vfabric-tc-server-standard/itbm-data-collector/bin/setenv.sh (Below <code>-Dsecurity.properties=\$CATALINA_BASE/conf/security.properties</code>)

- 8 Run the `monit start itbm-server` command.
- 9 Run the `monit start pricing-api` command.

Join or Leave VMware Customer Experience Improvement Program for vRealize Business for Cloud

vRealize Business for Cloud participates in VMware's Customer Experience Improvement Program (CEIP). Details regarding the data collected through CEIP and the purposes for which it is used by VMware are set forth at the Trust & Assurance Center at <http://www.vmware.com/trustvmware/ceip.html>.

You can join or leave the CEIP for vRealize Business for Cloud.

Procedure

- 1 Log in to the web console at https://vRealize_Business_for_Cloud_IP_address:5480.
- 2 Click the **Telemetry** tab.
- 3 Perform one of the following based on your requirements.
 - Select **Join the VMware Customer Experience Improvement Program** to participate in the program.
 - Deselect **Join the VMware Customer Experience Improvement Program** to not participate in the program.
- 4 Click **Save Settings**.

When you join the program, the vRealize Business for Cloud appliance attempts to establish a connection to <https://vmware.com> and to automatically discover any proxy server that you might have configured for your vRealize Business for Cloud appliance.

Upgrading vRealize Business for Cloud

3

You can upgrade your virtual appliance from one version to the latest version of vRealize Business for Cloud without redeploying the virtual appliance.

Table 3-1. Upgrade Scenarios

Scenario	Tasks to perform
If you are using a 7.x.x version	Perform one of the following procedure to upgrade. <ul style="list-style-type: none">■ “Upgrade Your 7.x.x version by Using Web Console,” on page 35■ “Upgrade Your 7.x.x by Using the Downloadable ISO Image,” on page 36
If you are using a 6.x.x version	Perform the steps provided at “Migrate Your vRealize Business Standard 6.2.3 to 7.x.x,” on page 37. NOTE After you upgrade, the cost trend of demand analysis and its details are lost. Also, the Demand Analysis option is renamed to Consumption Analysis with additional features.

This chapter includes the following topics:

- [“Upgrade Your 7.x.x version by Using Web Console,”](#) on page 35
- [“Upgrade Your 7.x.x by Using the Downloadable ISO Image,”](#) on page 36
- [“Migrate Your vRealize Business Standard 6.2.3 to 7.x.x,”](#) on page 37
- [“Upgrade to an intermediate vRealize Business for Cloud version,”](#) on page 38

Upgrade Your 7.x.x version by Using Web Console

You can upgrade the vRealize Business for Cloud (earlier known as, vRealize Business Standard) virtual appliance by using the vRealize Business for Cloud web console.

Prerequisites

- Take a snapshot of the virtual appliance and back up the database.
- Verify that you have upgraded vRealize Automation to 6.x.x and 7.x.x.

Procedure

- 1 Log in to the web console at https://vRealize_Business_for_Cloud_IP_address:5480.
- 2 Unregister vRealize Business for Cloud with vRealize Automation.
- 3 Click the **Update** tab.

- 4 Click **Check Updates** to see the available updates and to enable the **Install Updates** option.
- 5 Click **Install Updates**.
- 6 After successful upgrade, perform one of the following steps to shutdown the virtual appliance manually.
 - Log into the vSphere client or vCloud Director client and power off the virtual appliance.

NOTE Do not use the **Shut Down Guest** option.

- Log into virtual appliance and run the shutdown command.
- 7 Change the hardware configuration of the virtual appliance to 8 GB RAM and 4 vCPUs.
 - 8 Power on the virtual appliance manually on the vSphere client or vCloud Director client.
The upgrade process is complete.
 - 9 Re-register vRealize Business for Cloud with vRealize Automation.
 - 10 For the first login after upgrade, you are prompted to enter the new license key.
The earlier license key does not work. Also, if you had configured an AWS account in the earlier version, you must reconfigure your AWS account. For more information, see [“Configuring Amazon Web Services,”](#) on page 46.

Upgrade Your 7.x.x by Using the Downloadable ISO Image

You can update your vRealize Business for Cloud 7.x.x virtual appliance from an ISO file that the appliance reads from the virtual CD-ROM drive.

Prerequisites

- Take a snapshot of the virtual appliance and back up the database.
- Verify that you have downloaded the updated ISO file from the VMware.com web site.
- Add a CD-ROM drive to a virtual machine in the vCenter Server client. For more information, see the [Configure a Datastore ISO File for the DVD/CD-ROM Drive](#) topic in the vSphere Client topic in the vSphere documentation.

NOTE Before updating the vRealize Automation appliances, enable all CD-ROM drives you use in your upgrade.

Procedure

- 1 Log in to the web console at https://vRealize_Business_for_Cloud_IP_address:5480.
- 2 Unregister vRealize Business for Cloud with vRealize Automation.
- 3 Click **Settings**.
- 4 Under Update Repository, select **Use CD-ROM Updates**.
- 5 Click **Save Settings**.
- 6 Click **Check Updates** to see the available updates and to enable the **Install Updates** option.
- 7 Click **Install Updates**.

- 8 After successful upgrade, perform one of the following steps to shutdown the virtual appliance manually.
 - Log into the vSphere client or vCloud Director client and power off the virtual appliance.

NOTE Do not use the **Shut Down Guest** option.

- Log into virtual appliance and run the shutdown command.
- 9 Change the hardware configuration of the virtual appliance to 8 GB RAM and 4 vCPUs.
 - 10 Power on the virtual appliance manually on the vSphere client or vCloud Director client.
The upgrade process is complete.

- 11 Re-register vRealize Business for Cloud with vRealize Automation.

- 12 For the first login after upgrade, you are prompted to enter the new license key.

The earlier license key does not work. Also, if you had configured an AWS account in the earlier version, you must reconfigure your AWS account. For more information, see [“Configuring Amazon Web Services,”](#) on page 46.

Migrate Your vRealize Business Standard 6.2.3 to 7.x.x

The earlier versions of vRealize Business Standard were based on 11 SLES, whereas, the 7.0 and later versions are based on SUSE Linux Enterprise Server (SLES) 12. So, the 6.2.3 upgrade process to 7.x.x involves deployment of the server and then migration of data.

NOTE After you upgrade, the cost trend of demand analysis and its details are lost. Also, the **Demand Analysis** option is renamed to **Consumption Analysis** with additional features.

Prerequisites

- Ensure that you have a vRealize Business Standard 6.2.3 setup.

NOTE If you are using earlier versions of vRealize Business Standard, you must first upgrade to 6.2.3 and then migrate to 7.x.x.

- Take a snapshot of the virtual appliance and back up the database.
- Enable the SSH settings on your earlier virtual appliance, see [“Enable or Disable SSH Settings,”](#) on page 31.

Procedure

- 1 Deploy the latest version on vSphere or vCloud Director. See [“Deploy vRealize Business for Cloud Virtual Appliance on vSphere,”](#) on page 16 and [“Deploy vRealize Business for Cloud Virtual Appliance on vCloud Director,”](#) on page 18.
- 2 Log in to the web console at `https://vRealize_Business_for_Cloud_IP_address:5480`.
- 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 your appliance. See “[Register vRealize Business for Cloud with vRealize Automation](#),” on page 22.

Upgrade to an intermediate vRealize Business for Cloud version

You can upgrade to an intermediate version of vRealize Business for Cloud. By default, the **Update** tab in the virtual appliance displays the latest vRealize Business for Cloud version.

Prerequisites

- Take a snapshot of the vRealize Business for Cloud virtual appliance and back up the database.
- Verify that you have upgraded vRealize Automation to the supported version of vRealize Business for Cloud.

Procedure

- 1 Log in to the web console at https://vRealize_Business_for_Cloud_IP_address:5480.
- 2 Unregister vRealize Business for Cloud with vRealize Automation.
- 3 Click **Settings**.
- 4 Under Update Repository, select **Use Specified Repository**.
- 5 Copy the default repository URL and paste it in the URL field.
For 1.0.1 version, the URL is <https://vapp-updates.vmware.com/vai-catalog/valm/vmw/a1ba78af-ec67-4333-8e25-a4be022f97c7/1.0.1.0.latest>.
- 6 Update the version number in URL to the version that you want to upgrade.
To upgrade to 1.1 version, replace /1.0.1.0.latest to /1.1.0.0. For example, <https://vapp-updates.vmware.com/vai-catalog/valm/vmw/a1ba78af-ec67-4333-8e25-a4be022f97c7/1.1.0.0>
- 7 Click **Save Settings**.
- 8 Click **Check Updates** to see the available updates and to enable the **Install Updates** option.
- 9 Click **Install Updates**.
- 10 (Optional) If you are upgrading from version 1.0 or 1.0.1 to version 1.1, perform the following steps to re-register vRealize Business Standard with vRealize Automation.
 - a Log into the virtual appliance with the root credentials.
 - b Open the `catalina.properties` file located at `/usr/local/tcserver/vfabric-tc-server-standard/itbm-server/conf/`.
 - c Copy the SSL keystore password specified in the `bio-ssl.ssl.keystore.password` parameter.
 - d Using the `vi` command, open the following files located at `/usr/sbin/` and replace the SSL keystore password set in the `-Djavax.net.ssl.trustStorePassword=keystore.password.to.be.replaced\` property for each file.


```
itfm-config
itfm-config-unregister
itfm-config-getinfo
```
- 11 After successful upgrade, perform one of the following steps to reboot the virtual appliance manually.
 - Log into the web console, navigate to the **System** tab, and click **Reboot**.
 - Log into virtual appliance and run the reboot command.

The upgrade process is complete.

- 12 Re-register vRealize Business for Cloud with vRealize Automation.
- 13 For the first login after upgrade, you are prompted to enter the new license key.

The earlier license key does not work. Also, if you had configured an AWS account in the earlier version, you must reconfigure your AWS account. For more information, see [“Configuring Amazon Web Services,”](#) on page 46.

Setting Up vRealize Business for Cloud

4

After you deploy vRealize Business for Cloud, you can add vCenter Server, vCloud Director and EMC SRM instances to vRealize Business for Cloud. You can also update the reference database, manage public cloud accounts, download a support file, add and update the license key for vRealize Business for Cloud. You also can generate a token for integration with vRealize Business 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 for Cloud Administration,”](#) on page 41
- [“Manage Private Cloud Connections,”](#) on page 42
- [“Manage Public Cloud Accounts,”](#) on page 45
- [“Update the Reference Database for vRealize Business for Cloud,”](#) on page 57
- [“Generate and Download the Support File,”](#) on page 58
- [“Update Licenses for vRealize Business for Cloud,”](#) on page 58
- [“Generate Token for vRealize Business Enterprise Integration,”](#) on page 59
- [“Managing the Data Collectors,”](#) on page 60
- [“Calculating Depreciation of Server Hardware Cost,”](#) on page 61

vRealize Business for Cloud Administration

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

You can perform several operations on the **Administration** tab.

- Add vCenter Server to vRealize Business for Cloud by entering vCenter Server details.
- Add vCloud Director to vRealize Business for Cloud by entering vCloud Director details.
- Add EMC SRM servers to vRealize Business for Cloud 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 Enterprise and vRealize Business for Cloud.
- 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 for Cloud setup.

Manage vCenter Server Connections

After you install vRealize Business for Cloud, you can add vCenter Server instances to vRealize Business for Cloud and retrieve the inventory information from your virtual environment. You can edit or delete vCenter Server instances from vRealize Business for Cloud. 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 for Cloud and assign this cloned role to the user.

Procedure

- 1 Log in to vRealize Business for Cloud or data collection manager:
 - If you are using a vRealize Automation integrated vRealize Business for Cloud setup, log in at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click **Administration** and **Business Management**.
 - If you are using a vRealize Business for Cloud standalone setup, log in at https://vRealize_Business_for_Cloud_host_name/itfm-cloud as an administrator and click **Business Management**.
 - If you are using a remote 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 for Cloud 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 for Cloud.

NOTE If the SSL certificate changes after addition of instance into vRealize Business for Cloud, 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 for Cloud user interface only after a successful completion of cost calculation.

Manage EMC SRM servers in vRealize Business for Cloud

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

Prerequisites

Verify that you have the EMC SRM server user credentials.

Procedure

- 1 Log in to vRealize Business for Cloud or data collection manager:
 - If you are using a vRealize Automation integrated vRealize Business for Cloud setup, log in at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click **Administration** and **Business Management**.
 - If you are using a vRealize Business for Cloud standalone setup, log in at https://vRealize_Business_for_Cloud_host_name/itfm-cloud as an administrator and click **Business Management**.
 - If you are using a remote 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 for Cloud 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 for Cloud.

NOTE If the SSL certificate changes after addition of instance into vRealize Business for Cloud, 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 for Cloud to get vCloud Director based categorization. You can edit or delete vCloud Director instances from vRealize Business for Cloud. 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 for Cloud, 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 for Cloud.

Procedure

- 1 Log in to vRealize Business for Cloud or data collection manager:
 - If you are using a vRealize Automation integrated vRealize Business for Cloud setup, log in at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click **Administration** and **Business Management**.
 - If you are using a vRealize Business for Cloud standalone setup, log in at https://vRealize_Business_for_Cloud_host_name/itfm-cloud as an administrator and click **Business Management**.
 - If you are using a remote 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 for Cloud 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 for Cloud.

NOTE If the SSL certificate changes after addition of instance into vRealize Business for Cloud, 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 for Cloud. You can also compare these public cloud accounts.

Manage VMware vCloud Air Connections

You can add vCloud Air accounts to vRealize Business for Cloud.

Prerequisites

Verify that you have a vCloud Air user credentials.

Procedure

- 1 Log in to vRealize Business for Cloud or data collection manager:
 - If you are using a vRealize Automation integrated vRealize Business for Cloud setup, log in at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click **Administration** and **Business Management**.
 - If you are using a vRealize Business for Cloud standalone setup, log in at https://vRealize_Business_for_Cloud_host_name/itfm-cloud as an administrator and click **Business Management**.
 - If you are using a remote 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 for Cloud 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 for Cloud.

NOTE If the SSL certificate changes after addition of instance into vRealize Business for Cloud, 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.

Using Amazon Web Services Accounts in vRealize Business for Cloud

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

Configuring Amazon Web Services

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

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

- 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 for Cloud.

- 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 the paying accounts, you must create and configure the S3 bucket. For information about how to create and configure the S3 bucket, see <http://www.vmtocloud.com/how-to-add-aws-account-to-itbm-standard-1-1/>.
- For the paying accounts, you must 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 the paying accounts, you must 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.

- For the paying accounts, ensure that the AWS user has permissions, like `s3:Get*`, `s3:List*`, `ec2:Describe*`.

You can add the inline policies and provide these required permissions. For example,

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "Stmt1418381123000",
      "Effect": "Allow",
      "Action": [
        "s3:Get*",
        "s3:List*"
      ],
      "Resource": [
        "arn:aws:s3:::*"
      ]
    }
  ]
}
```

- For the non-paying accounts, ensure that the AWS user has the `ec2:Describe*` permission.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "Stmt1418206217000",
      "Effect": "Allow",
      "Action": [
        "ec2:Describe*"
      ],
      "Resource": [
        "*"
      ]
    }
  ]
}
```

- (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 for Cloud.

Manage Amazon Web Services Account

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

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 non-paying 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 for Cloud.

For more information, see *vRealize Business for Cloud User Guide*.

Procedure

- 1 Log in to vRealize Business for Cloud or data collection manager:
 - If you are using a vRealize Automation integrated vRealize Business for Cloud setup, log in at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click **Administration** and **Business Management**.
 - If you are using a vRealize Business for Cloud standalone setup, log in at https://vRealize_Business_for_Cloud_host_name/itfm-cloud as an administrator and click **Business Management**.
 - If you are using a remote 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).
- 5 To set an account to be a paying account in vRealize Business for Cloud, 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.

Using Microsoft Azure Accounts in vRealize Business for Cloud

You can configure and add Microsoft Azure accounts in vRealize Business for Cloud to track your Azure cost.

Configure Azure Non-EA Accounts

Before you add a non-EA account to vRealize Business for Cloud, you need to configure the account.

Prerequisites

You must have a Microsoft Azure non-EA account with one of the following credits offers.

- Pay-as-you-go
- MSDN
- Monetary commitment
- Monetary credit

Procedure

- 1 Log in to Azure portal at <https://manage.windowsazure.com> by using your Microsoft account credentials.
- 2 On the left navigation panel, click **Active Directory** and then select **Default Directory**. Create a user in Azure active directory.
- 3 Click **New User** to create an user in the Default Directory.
- 4 Enter a name for the user and assign a Service or Global Administrator permissions.
- 5 Log in to Azure portal by using the new user name and reset the password.
- 6 Navigate to **Active Directory > Default Directory**, select **Applications** and click **Add**.
- 7 Enter the application details.
 - a Select **Add an application my organization is developing**.
 - b Enter a name for the application.
 - c Select **Native Client Application**.
- 8 Enter a sign-on URL and application URI (example, <https://vmware.com>).
- 9 Select the application and click **Configure** on the default directory page.
- 10 Click **Add Application** and assign the **Windows Azure Service Management API** permission to the application.

You see the Client ID and user name details, which you can use while adding the account to vRealize Business for Cloud.

What to do next

[“Manage Microsoft Azure Accounts in vRealize Business for Cloud,”](#) on page 50

Manage Microsoft Azure Accounts in vRealize Business for Cloud

You can create, modify, delete and configure a Microsoft Azure account through vRealize Business for Cloud. vRealize Business for Cloud 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 vRealize Business for Cloud as an administrator at:
 - https://vRealize_Automation_host_name/vcac/org/tenant_URL (for the vRealize Automation integrated setup)
 - https://vRealize_Business_for_Cloud_host_name/itfm-cloud(for the vRealize Business for Cloud standalone setup)
- 2 Click the **Administration** tab.
- 3 Click **Business Management**.
Ignore this step for the vRealize Business for Cloud standalone setup.
- 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 for Cloud. You can also add your own public cloud account to vRealize Business for Cloud 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 vRealize Business for Cloud as an administrator at:
 - https://vRealize_Automation_host_name/vcac/org/tenant_URL (for the vRealize Automation integrated setup)
 - https://vRealize_Business_for_Cloud_host_name/itfm-cloud (for the vRealize Business for Cloud standalone setup)
- 2 Click the **Administration** tab.
- 3 Click **Business Management**.
Ignore this step for the vRealize Business for Cloud standalone setup.
- 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.

Component	Description
Cloud Provider Name	(Optional) Type the cloud provider name.
URL	(Optional) Type the URL of the cloud provider.
Logo	(Optional) Upload the logo of your cloud provider.
Click to download the cloud provider comparison template	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: <ul style="list-style-type: none"> ■ Update the DRL file for Cloud Comparison ■ Update the XLS file for Cloud Comparison
Upload settings file	Click the Browse to locate the file link and select your configuration file.

- 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 for Cloud.

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 for Cloud 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 for Cloud. 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 vRealize Business for Cloud as an administrator at:
 - https://vRealize_Automation_host_name/vcac/org/tenant_URL (for the vRealize Automation integrated setup)
 - https://vRealize_Business_for_Cloud_host_name/itfm-cloud (for the vRealize Business for Cloud standalone setup)
- 2 Click the **Administration** tab.
- 3 Click **Business Management**.
Ignore this step for the vRealize Business for Cloud standalone setup.
- 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.

- 7 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.

Option	Description
Matching Rule	<p>Defines which configuration is mapped to a specific instance from the cloud provider.</p> <p>For example, the following Azure DRL specifies the instance that must be mapped to an instance.</p> <pre>rule "Azure_matching_A0" dialect "mvel" no-loop true when config : MatchingDetails(ramGb <= 0.75 && (cpuGhz * numOfCpu) <= 1.0) then config.addMatchingInstance("A0"); End</pre> <p>Where,</p> <ul style="list-style-type: none"> ■ <code>Azure_matching_A0</code> is the rule name. ■ <code>when config : MatchingDetails(ramGb <= 0.75 && (cpuGhz * numOfCpu) <= 1.0)</code> is the condition to map the workload to the instance type.. ■ <code>ramGb <= 0.75 and cpuGhz*numOfCpu <=1.0</code> is the condition to map to the instance type. ■ <code>config.addMatchingInstance("A0")</code> is the name to represent instance type. ■ <code>MatchingDetails</code> is the object with multiple fields that match the user configuration per virtual machine. <p>The <code>MatchingDetails</code> supports the following fields:</p> <ul style="list-style-type: none"> ■ <code>private Double ramGb;</code> ■ <code>private Integer numOfCpu;</code> ■ <code>private Double cpuGhz;</code> ■ <code>private Boolean enforcePhysicalIsolation;</code> ■ <code>private String instance;</code> ■ <code>private Integer reservation;</code> ■ <code>private String osGenericType;</code> ■ <code>private Long configId;</code> ■ <code>private List<String> possibleInstances;</code> ■ <code>private StoragePriceSummaryDetails storage;</code> ■ <code>private Double upTimePct;</code> ■ <code>private Double cpuUtilization;</code> ■ <code>private Double ramUtilization;</code> ■ <code>public void addMatchingInstance(String instanceName);</code>
Pricing Rule	<p>Determines the price for the matched instance type.</p> <p>For example, the following Azure DRL specifies how to price a matching instance.</p> <pre>rule "Azure_pricing_A0_WINDOWS" dialect "mvel" no-loop true when compute : ComputePriceDetails(instanceName == "A0" && osGenericType == "WINDOWS") then</pre>

Option	Description
	<pre data-bbox="710 216 1214 317"> compute.setPrice(0.02,"PER_HOUR"); compute.addAdditionalDetail("Price Plan",compute.getPricePlanLabel(),""); end </pre> <p data-bbox="710 323 778 350">Where,</p> <ul style="list-style-type: none"> <li data-bbox="710 357 1382 407">■ Azure_pricing_A0_WINDOWS specifies how to price the Windows Azure Instance. <li data-bbox="710 413 1417 491">■ when compute : ComputePriceDetails(instanceName == "A0" && osGenericType == "WINDOWS") is the condition of when to map the workload to this rule. <li data-bbox="710 497 1409 548">■ instanceName == "A0" is the name of the instance, which is A0 and the operating system, Windows or LINUX. <li data-bbox="710 554 1390 611">■ compute.setPrice(0.02, "PER_HOUR"); is defining the price per hour or month, which is 0.02 per each hour. <li data-bbox="710 617 1362 695">■ compute.addAdditionalDetail("Price Plan",compute.getPricePlanLabel(),""); is the tool-tip or additional details. <li data-bbox="710 701 1422 758">■ ComputePricingDetails is the object with multiple fields that match the user configuration per virtual machine. <p data-bbox="710 764 1289 791">The ComputePricingDetails supports the following fields:</p> <ul style="list-style-type: none"> <li data-bbox="710 798 1034 825">■ private String instance; <li data-bbox="710 831 1058 858">■ private Integer pricePlan; <li data-bbox="710 865 1091 892">■ private String osGenericType; <li data-bbox="710 898 1010 926">■ private String region; <li data-bbox="710 932 1262 959">■ private StoragePriceSummaryDetails storage; <li data-bbox="710 966 1166 993">■ private Double reservationDiscount; <li data-bbox="710 999 1203 1047">■ private Map<String, AdditionalDetails> additionalDetails; <li data-bbox="710 1054 1070 1081">■ private Double osLaborCost; <li data-bbox="710 1087 1262 1136">■ private Map<String, AdditionalPriceDetails> additionalPrices; <li data-bbox="710 1142 1214 1169">■ private boolean computeIncludesStorage; <li data-bbox="710 1176 1142 1203">■ private boolean ignoreInTotalSum; <li data-bbox="710 1209 1106 1236">■ private String providerRegion; <li data-bbox="710 1243 1398 1291">■ public void setPrice(Double price, String unit, String providerRegion); <li data-bbox="710 1297 1362 1346">■ 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 for Cloud to compare the price against other cloud providers.

Update the XLS file for Cloud Comparison

vRealize Business for Cloud 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 for Cloud. 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 vRealize Business for Cloud as an administrator at:
 - https://vRealize_Automation_host_name/ocac/org/tenant_URL (for the vRealize Automation integrated setup)
 - https://vRealize_Business_for_Cloud_host_name/itfm-cloud(for the vRealize Business for Cloud standalone setup)
- 2 Click the **Administration** tab.
- 3 Click **Business Management**.
Ignore this step for the vRealize Business for Cloud standalone setup.
- 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.

Worksheet Name	Description
instance	<p>Use this worksheet to specify the matching configuration details for each instance type.</p> <ul style="list-style-type: none"> ■ Instance name ■ CPU speed ■ Number of processors or cores ■ RAM memory ■ Operating System - Windows or LINUX ■ Term plan ■ Region - North America, ASIA, South America or Europe ■ Total storage size ■ Network Area Storage (NAS) size ■ Storage Area Network (SAN) size <p>NOTE Update the storage values in the instance worksheet Only when the storage is packaged with compute from a pricing standpoint.</p> <ul style="list-style-type: none"> ■ Instance price per unit time. ■ Monthly operating system labor cost ■ Any additional price information or additional details for the instance <p>NOTE The additional details are also displayed on the UI during comparison.</p>
storage	<p>Use this worksheet to specify storage configurations.</p> <ul style="list-style-type: none"> ■ Storage type - NSA, SAN or total storage ■ Region - North America, ASIA, South America or Europe ■ Storage pricing values for each configuration, up to five levels
discount	<p>Use this worksheet to specify the pricing range for availing discount and percentage of discount for a specific pricing range.</p>

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 for Cloud to compare the price against other cloud providers.

Update the Reference Database for vRealize Business for Cloud

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 for Cloud 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 vRealize Business for Cloud as an administrator at:
 - https://vRealize_Automation_host_name/vcac/org/tenant_URL (for the vRealize Automation integrated setup)
 - https://vRealize_Business_for_Cloud_host_name/itfm-cloud (for the vRealize Business for Cloud standalone setup)

2 Click the **Administration** tab.

3 Click **Business Management**.

Ignore this step for the vRealize Business for Cloud standalone setup.

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 vRealize Business for Cloud or data collection manager:
 - If you are using a vRealize Automation integrated vRealize Business for Cloud setup, log in at https://vRealize_Automation_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator, click **Administration** and **Business Management**.
 - If you are using a vRealize Business for Cloud standalone setup, log in at https://vRealize_Business_for_Cloud_host_name/itfm-cloud as an administrator and click **Business Management**.
 - If you are using a remote data collector, log in to https://Remote_Data_Collector_IP_address:9443/dc-ui/login.html by using the root user credentials.
- 2 Log in to vRealize Automation or data collection manager.
 - To get support for the vRealize Business for Cloud server, 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 get support for the remote data collection manager, log in to https://Remote_Data_Collector_IP_address:9443/dc-ui/login.html by using the root user credentials.
- 3 Click **Support File**, and then click **Generate and download file**.
- 4 Save the file.

The support zip file is saved as an archive file. You can share the file with the support team to fix the issues.
- 5 Select the **Enable debug logging** to collect the debug level information in the log files, which helps during support and debugging the issue.

Update Licenses for vRealize Business for Cloud

You can update the license of vRealize Business for Cloud by using the **Update License** option.

Procedure

- 1 Log in to vRealize Business for Cloud as an administrator at:
 - https://vRealize_Automation_host_name/vcac/org/tenant_URL (for the vRealize Automation integrated setup)
 - https://vRealize_Business_for_Cloud_host_name/itfm-cloud(for the vRealize Business for Cloud standalone setup)
- 2 Click the **Administration** tab.
- 3 Click **Business Management**.

Ignore this step for the vRealize Business for Cloud standalone setup.
- 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 the maximum number of CPU packages (socket) that the license key can support
 - Existing number of CPU packages (socket) and the number of virtual machines from private and public cloud accounts
 - Expiry date, if you are using the temporary license
 - License edition - The Standard, Advanced or Enterprise editions of vRealize Business for Cloud, vRealize Suite, or vCloud Suite licenses.
- 5 Enter the license key in the **New license key** text box.

NOTE You can use the vRealize Business for Cloud, vRealize Suite, or vCloud Suite license keys to access vRealize Business for Cloud.

- 6 Click **Update**.

If the new license key is valid, the license is updated.

Generate Token for vRealize Business Enterprise Integration

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

Procedure

- 1 Log in to vRealize Business for Cloud as an administrator at:
 - https://vRealize_Automation_host_name/vcac/org/tenant_URL (for the vRealize Automation integrated setup)
 - https://vRealize_Business_for_Cloud_host_name/itfm-cloud(for the vRealize Business for Cloud standalone setup)
- 2 Click the **Administration** tab.
- 3 Click **Business Management**.
Ignore this step for the vRealize Business for Cloud standalone setup.
- 4 Expand **vRealize Business Integration**, and click **Generate a new vRealize Business token**.
vRealize Business for Cloud generates a token and vRealize Business for Cloud 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 for Cloud.

You can use this information to define a connection between vRealize Business Enterprise and vRealize Business for Cloud.

What to do next

For detailed process of integration between vRealize Business Enterprise and vRealize Business for Cloud, see *vRealize Business Enterprise Installation Guide*.

Managing the Data Collectors

You can manage remote data collectors by generating one time key to register with a vRealize Business for Cloud 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 for Cloud, you must generate a one-time key in the vRealize Business for Cloud server.

Prerequisites

Verify that you have deployed and configured the data collector and a vRealize Business for Cloud server. See [“Deploying a Remote Data Collector,”](#) on page 20

Procedure

- 1 Log in to vRealize Business for Cloud as an administrator at:
 - https://vRealize_Automation_host_name/vcac/org/tenant_URL (for the vRealize Automation integrated setup)
 - https://vRealize_Business_for_Cloud_host_name/itfm-cloud(for the vRealize Business for Cloud standalone setup)

2 Click the **Administration** tab.

3 Click **Business Management**.

Ignore this step for the vRealize Business for Cloud standalone setup.

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 for Cloud Server,”](#) on page 21.

View the Registered Data Collectors

You can register your remote data collectors with vRealize Business for Cloud and view the list of collectors registered on the vRealize Business for Cloud server.

Prerequisites

See [“Register a Remote Data Collector with vRealize Business for Cloud Server,”](#) on page 21.

Procedure

- 1 Log in to vRealize Business for Cloud as an administrator at:
 - https://vRealize_Automation_host_name/vcac/org/tenant_URL (for the vRealize Automation integrated setup)
 - https://vRealize_Business_for_Cloud_host_name/itfm-cloud (for the vRealize Business for Cloud standalone setup)
- 2 Click the **Administration** tab.
- 3 Click **Business Management**.
Ignore this step for the vRealize Business for Cloud standalone setup.
- 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 for Cloud 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 for Cloud 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 for Cloud calculates the yearly depreciation values of server hardware cost and then divides the value by 12 to arrive at the monthly depreciation.

vRealize Business for Cloud uses the salvage value of zero dollars.

depreciable cost == original cost

Depreciation rate = 2 / number of depreciation years

For example, $2/5 = 0.4$

This is the yearly depreciation of double declining balance method and yearly depreciation of straight line method.

Table 4-1. Depreciation Methods

Method	Calculation
Double declining balance	yearly double declining depreciation = (original cost – accumulated depreciation) * depreciation rate NOTE Double declining depreciation for the last year = original cost – accumulated depreciation
Straight line	Yearly straight line depreciation = (original cost – accumulated depreciation) / number of remaining depreciation years

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

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

Yearly depreciation = Max(yearly depreciation of double declining balance method, yearly depreciation of straight line method)

Below is an example of depreciation cost for an original cost of \$2000 with a depreciation period of five years.

- Depreciation cost for the first year: $\text{Max}[(2000-0) * 0.4, ((2000-0)/5)] = \text{Max}(800, 400) \Rightarrow 800$
(per_month= 66.67)
- Depreciation cost for the second year: $\text{Max}[(2000-800) * 0.4, ((2000-800)/4)] = \text{Max}(480, 300) \Rightarrow 480$ (per_month= 40)
- Depreciation cost for the third year: $\text{Max}[(2000-1280) * 0.4, ((2000-1280)/3)] = \text{Max}(288, 240) \Rightarrow 288$ (per_month= 24)
- Depreciation cost for the fourth year: $\text{Max}[(2000-1568) * 0.4, ((2000-1568)/2)] = \text{Max}(172.8, 216) \Rightarrow 216$ (per_month= 18)
- Depreciation cost for the fifth year: $\text{Max}[(2000-1784) * 0.4, ((2000-1784)/1)] = \text{Max}(86.4, 216) \Rightarrow 216$ (per_month= 18)

Troubleshooting vRealize Business for Cloud

5

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

This chapter includes the following topics:

- [“vRealize Business for Cloud Is Disconnected,”](#) on page 64
- [“Error While Accessing vRealize Business for Cloud,”](#) on page 64
- [“Business Management Tab Does not Appear,”](#) on page 65
- [“Some of the Provisioned Virtual Machines Do Not Appear for an Azure Account,”](#) on page 65
- [“vRealize Business for Cloud and vRealize Automation Connection Failure,”](#) on page 66
- [“vRealize Automation Data Collection Failure,”](#) on page 66
- [“SSL Certificate Errors After You Add an Endpoint,”](#) on page 67
- [“vCenter Server Data Collection Failure,”](#) on page 67
- [“vCenter Server Storage Synchronization Failure,”](#) on page 68
- [“Data Collection Fails After vCenter Server Upgrade,”](#) on page 69
- [“The ESXi Server Cost Is Doubled in vRealize Business for Cloud,”](#) on page 70
- [“Unable to See the vCloud Director Categorization,”](#) on page 70
- [“Virtual Machines that Exist in vCloud Director Are Not Displayed in vRealize Business for Cloud,”](#) on page 71
- [“Blueprint Costs Displayed as Zero for vCloud Director Based Blueprints in vRealize Automation,”](#) on page 72
- [“Blueprints Appear in the Other Cloud Providers Tab,”](#) on page 72
- [“Unable to Add AWS Accounts,”](#) on page 72
- [“Data Collection Failure for Azure Non-EA Accounts,”](#) on page 73
- [“Unable to Add EMC SRM Storage Servers,”](#) on page 74
- [“Storage Array Details Do Not Appear,”](#) on page 74
- [“The Computed LUN Rate Does Not Match the Actual Rate,”](#) on page 75
- [“Error While Filtering Reports,”](#) on page 76
- [“Unable to Restart Services by Using the `monit restart all` Command,”](#) on page 76
- [“Registration of vRealize Business for Cloud with VMware Identity Manager Fails,”](#) on page 76

- [“Unable to Log In to VMware Identity Manager,”](#) on page 77
- [“Troubleshoot the Warning Message About vRealize Business for Cloud Access Permissions,”](#) on page 77
- [“Redirecting to VMware Identity Manager Might Fail,”](#) on page 78

vRealize Business for Cloud Is Disconnected

You are unable to connect to vRealize Business for Cloud.

Problem

After the vRealize Automation SSL certificate is updated, the connection to vRealize Business for Cloud is lost.

Cause

An administrator has replaced the self-signed certificate of vRealize Automation, which is not registered with vRealize Business for Cloud.

Solution

For information about how to register vRealize Business for Cloud, see the *Register vRealize Business for Cloud with vRealize Automation* section in the Installation Guide.

Procedure

- ◆ Register your vRealize Business for Cloud server with vRealize Automation.

Error While Accessing vRealize Business for Cloud

After you register vRealize Business for Cloud with vRealize Automation, you might see an error when you attempt to access vRealize Business for Cloud.

Problem

After you register vRealize Business for Cloud with vRealize Automation, if you click the **Business Management** tab in the vRealize Automation user interface, you might see Error 404 or HTTP Error 401 Unauthorized error.

Cause

These errors might occur in one of the following situations

- vRealize Business for Cloud server is not up or reachable.
- The time between vRealize Automation and vRealize Business for Cloud virtual appliances is not synchronized. The time difference between the virtual appliances must not be more than 60 seconds.

Solution

For information about how to synchronize the time between vRealize Automation and vRealize Business for Cloud virtual appliances, see the *Configure Time Synchronization* section in the Install Guide.

Procedure

- When you see Error 404, perform the following steps:
 - a Log in to the vRealize Business for Cloud virtual machine.
 - b Run the `monit restart itbm-server` command.

The server restarts in 20 to 30 seconds.

- When you see Error 401, perform the following steps:
 - a Configure the same NTP servers on both vRealize Automation and vRealize Business for Cloud virtual appliances.
 - b Restart the virtual appliances.

Business Management Tab Does not Appear

After you register vRealize Business for Cloud with vRealize Automation, the **Business Management** tab does not appear in the vRealize Automation user interface.

Problem

After you register vRealize Business for Cloud with vRealize Automation and assign the **Business Management** role or the **Tenant Controller** role to a user, the **Business Management** tab does not appear in the vRealize Automation user interface.

Cause

This problem might occur in one of the following situations.

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

Solution

- When the vRealize Automation IaaS component is unavailable, perform the following steps.
 - a Log in to vRealize Automation virtual appliance by using the root credentials.
 - b Create an `extension.properties` file under `/etc/vcac` and hide the home page tab by using the `shell.disabledExtensions=csp.home` command

You can hide other tabs by using `shell.disabledExtensions=extension-id[,extension-id]`
 - c Restart the vRealize Automation virtual appliance.
 - d Log in to the vRealize Automation interface.

The Business Management tab appears.

- When vRealize Automation data is cached on server, perform the following steps.
 - a Log in to vRealize Automation by using the `administrator@vsphere.local` credentials.
 - b Click **Edit** to open the edit window of the user tenant and click **Update**.
 - c Log out and log in again as a tenant by using the tenant URL.

Some of the Provisioned Virtual Machines Do Not Appear for an Azure Account

For an Azure Account, you do not see all the virtual machines that you have provisioned.

Problem

You do not see all the virtual machines provisioned for an Azure account.

Cause

When you have multiple virtual machines in one or more of your cloud services, the number of virtual machines that you see in vRealize Business for Cloud is the number of cloud services that you have in your Azure account.

vRealize Business for Cloud and vRealize Automation Connection Failure

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

Problem

After you register vRealize Business for Cloud with vRealize Automation, if you navigate to **Administration > Business Management**, a `java.net.NoRouteToHostException: No route to host` error message is displayed.

Cause

This problem occurs if the IP address of the vRealize Business for Cloud virtual appliance changes after vRealize Business for Cloud is registered with vRealize Automation.

Solution

For information about recreating SSL key store, see the *Change or Replace the SSL Certificate of vRealize Business for Cloud* section in the Installation Guide.

For information about how to register vRealize Business for Cloud, see the *Register vRealize Business for Cloud with vRealize Automation* section in the Installation Guide.

Procedure

- 1 Log in to the vRealize Business for Cloud Web console, `https://vRealize_Business_for_Cloud_IP_address:5480`.
- 2 Unregister vRealize Business for Cloud from vRealize Automation. For more information, see the *Unregister vRealize Business for Cloud from vRealize Automation* section.
- 3 Perform one of the following steps.
 - Remove vRealize Business for Cloud virtual appliance from your environment and deploy a new instance of vRealize Business for Cloud with a static IP and fully-qualified domain name.
 - Re-create the SSL key store file (`ssl.keystore`).
- 4 Register vRealize Business for Cloud with vRealize Automation.

vRealize Automation Data Collection Failure

vRealize Business for Cloud and vRealize Automation connection fails, which results in data collection failure.

Problem

After you register vRealize Business for Cloud with vRealize Automation, the vRealize Automation data collection displays `IaaS host unknown` error and then the IaaS machine is not reachable from vRealize Business for Cloud.

Cause

This problem occurs if the time is not synchronized between vRealize Automation virtual appliance and the vRealize Business for Cloud vRealize Business for Cloud virtual appliance. The time difference between the two virtual appliances must not be more than 60 seconds.

Solution

For information about configuring Network Time Protocol (NTP), see the *Configure Time Synchronization* section in the Installation Guide.

Procedure

- 1 Configure the same NTP servers on both vRealize Automation and vRealize Business for Cloud virtual appliances.
- 2 Restart the virtual appliances.

SSL Certificate Errors After You Add an Endpoint

After you add an endpoint to vRealize Business for Cloud, you see an untrusted certificate error message in the system status or the identity of the endpoint that you have added does not match with its SSL certificate.

Problem

After you add an endpoint such as a vCenter Server, you see one of the following error messages:

- An untrusted certificate was presented by the server.
- The certificate presented by the server has issues. Rectify the certificate and edit the connection to accept the new certificate.

Cause

This problem might occur in one of the following situations.

- The SSL certificate of the endpoint has changed and a trusted authority might not have signed the certificate.
- The end point is added by using its IP address instead of host name.

Solution

- 1 Go to the **Administration** tab in vRealize Business for Cloud virtual appliance.
- 2 Navigate to the endpoint section. For example, **Manage Private Cloud Connections > vCenter Server**.
- 3 Select the endpoint and click the edit option.
- 4 Enter the password of the account and click **Save**.
- 5 View and accept the certificate.
- 6 Log in to the vRealize Business for Cloud as a root user and run the following commands to restart the data collection process.
 - a `monit stop itbm-data-collector`
 - b `monit start itbm-data-collector`

vCenter Server Data Collection Failure

vRealize Business for Cloud is unable to collect data from vCenter Server.

Problem

When you click **Status** on the vRealize Business for Cloud user interface, you see one of the following problems:

- You see the red icon for the vCenter Server status.
- You see a vCenter Server synchronization failure message.
- You see the following error message under vCenter Server section:

Unable to retrieve data from vROps *vrops_server_address*

- When you click **Status** on the vRealize Business for Cloud user interface, you see the following error message under vCenter Server:

Unable to authenticate to vROps *vrops_server_address* using the vCenter's credentials

Cause

This issue might occur in one of the following situations.

- The time zone of the vRealize Business for Cloud virtual appliance is not in the UTC format.
- 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.
- Individual vCenter Server user login is disabled in vRealize Operations Manager.

Solution

For more information, see the knowledge base article at <http://kb.vmware.com/kb/2146836>.

Procedure

- ◆ To resolve this problem, perform the applicable step out of the following solutions.
 - Change the time zone to a UTC format in the vRealize Business for Cloud virtual machine. and run the `monit restart itbm-server` command.
 - 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 in the last 24 hours, wait for vRealize Operations Manager to compute all data before attempting data collection again.
 - Check for any problems 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 plug-in on vRealize Operations Manager to register the new node with vCenter Server.
 - Enable the individual log in option in the vRealize Operations Manager instance.

Click **Administration > Global Setting > Edit > Allow vCenter users to log in to individual vCenters using the vRealize Operations Manager UI**.

vCenter Server Storage Synchronization Failure

vRealize Business for Cloud 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 to not appear in vRealize Business for Cloud.

Cause

This problem might occur in one of the following situations.

- The Web Services for Management (WS-Management) are not running on the vCenter Server.
- The vCenter Server user does not have all the following privileges.
 - **Storage views.View** and **Profile-driven storage.Profile-driven storage view** privileges.
 - If vCenter Server is integrated with vRealize Operations Manager, user must have the **Global.vCenter Operations User** privilege.
- 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.
- Database issues in vCenter Server.

Solution

For more information about steps to perform in vCenter Server to resolve these problems, see [KB2060967](#), [KB2076692](#), [KB2015180](#).

Procedure

- ◆ Fix the service monitoring or user privileges or the database problems in vCenter Server.

Data Collection Fails After vCenter Server Upgrade

After upgrading vCenter Server, data collection fails.

Problem

After you upgrade vCenter Server virtual appliance to the 6.0 version, the vCenter Server data collection fails.

Cause

The vCenter Server certificate has changed.

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**.
Ignore this step for the vRealize Business for Cloud standalone setup.
- 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 for Cloud

The cost of the ESXi hosts is doubled in vRealize Business for Cloud.

Problem

While calculating the cost of certain ESXi servers, vRealize Business for Cloud uses the cost value twice.

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, after you migrate the ESXi host to a new vCenter Server, delete it from the earlier vCenter Server.

Unable to See the vCloud Director Categorization

After vRealize Business for Cloud upgrade, vCloud Director categorization information does not appear in the upgraded setup.

Problem

After vRealize Business for Cloud upgrade, the organization constructs and the organization virtual data center constructs of the registered vCloud Director do not appear in vRealize Business for Cloud.

Cause

The vCloud Director server is down after vRealize Business for Cloud upgrade. As a result, the cost calculation process does not run.

Solution

- 1 Synchronize the vCloud Director process.
 - Click **Status** on vRealize Business for Cloud user interface, and click **Update Now** next to vCloud Director.
 - Wait for the next automatic cost calculation process to complete. By default, the process runs once every 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.

The information is displayed after a successful cost calculation process.

- 3 In the Consumption section on the UI, verify that you can see the organization-based information.

Virtual Machines that Exist in vCloud Director Are Not Displayed in vRealize Business for Cloud

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

Problem

Even after you add vCloud Director to vRealize Business for Cloud, the details of the virtual machine that vCloud Director manages are not displayed in vRealize Business for Cloud.

Cause

You have not explicitly added the vCenter Server instances that are managed by vCloud Director to vRealize Business for Cloud.

Solution

- 1 Log in to vRealize Business for Cloud or data collection manager:
 - If you are using a vRealize Automation integrated vRealize Business for Cloud setup, log in at `https://vRealize_Automation_host_name/vcac/org/tenant_URL` by using credentials of a tenant administrator, click **Administration** and **Business Management**.
 - If you are using a vRealize Business for Cloud standalone setup, log in at `https://vRealize_Business_for_Cloud_host_name/itfm-cloud` as an administrator and click **Business Management**.
 - If you are using a remote data collector, log in to `https://Remote_Data_Collector_IP_address:9443/dc-ui/login.html` by using the root user credentials.
- 2 Click the **Administration** tab.
- 3 Click **Business Management**.
Ignore this step for the vRealize Business for Cloud standalone setup.
- 4 Click **Manage Private Cloud Connections**.
- 5 Enter the required details to add the instance.
- 6 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 for Cloud does not verify the revocation status of the SSL certificate. You must verify the status manually before accepting the certificate.

- 7 Click **Install**.

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

NOTE If the SSL certificate changes after addition of instance into vRealize Business for Cloud, 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.

Blueprint Costs Displayed as Zero for vCloud Director Based Blueprints in vRealize Automation

When you provision a virtual machine from vCloud Director based blueprint in vRealize Automation, the cost value is displayed as zero.

Problem

When you provision a virtual machine from vCloud Director based blueprint in vRealize Automation, the cost value is not updated even when you update the cost in vRealize Automation and, the value is displayed as zero.

Cause

This problem might occur in one of the following situations.

- The vCloud Director endpoint that exists in vRealize Automation is not added in vRealize Business for Cloud.
- The price value is not configured in vRealize Business for Cloud.

Solution

- Add the vCloud Director endpoint in vRealize Business for Cloud.
- Configure the pricing values by navigating to **Pricing and Charges > Pricing > Edit > Edit Pricing > Other Cloud Providers**.

Blueprints Appear in the Other Cloud Providers Tab

The blueprints associated to the endpoints appear on the **Other Cloud Providers** tab in vRealize Business for Cloud.

Problem

After you add an endpoint in vRealize Automation, when you click **Edit Pricing**, you see the blueprints associated to the endpoint appear on the **Other Cloud Providers** tab, but not under the respective section on the **Private Cloud (vSphere)**, **Public Cloud (AWS)** or **Hybrid Cloud (vCloud Air)** tabs.

Cause

You have added the endpoint in vRealize Automation only, and not in vRealize Business for Cloud.

Solution

For information about how to add an endpoint, see *Manage Private Cloud Connections* and *Manage Public Cloud Connections* in the installation Guide.

Procedure

- ◆ Add the endpoint in vRealize Business for Cloud.

Unable to Add AWS Accounts

You are unable to add an AWS account that you want to track and analyze by using vRealize Business for Cloud.

Problem

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

Cause

This problem might occur because of one of the following reasons.

- When adding an account, the paying accounts are not marked as primary accounts.
- The AWS CSV file is huge and exceeds the available storage on vRealize Business for Cloud virtual appliance.
- For paying accounts, you have not enabled the detailed billing report.
- The account ID contains special characters or alphabets or the length of account ID is greater than 12 characters.
- 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 the account ID, yyyy is the year, and mm is the month.
 - For a paying account, ensure that the AWS user has required permissions such as **s3:Get***, **s3:List***, and **ec2:Describe***.

For a non-paying account, verify that the AWS user has the **ec2:Describe*** permission.

Data Collection Failure for Azure Non-EA Accounts

vRealize Business for Cloud is unable to collect data for Azure non-EA accounts .

Problem

The data collection process does not complete successfully in vRealize Business for Cloud for Azure non-EA accounts.

Solution

- 1 Log in to Azure portal at <https://account.windowsazure.com/Subscriptions>.
- 2 Make a note of the offer IDs for your subscriptions.
If the offer ID is MS-AZR-0003P, note 0003P and ignore MS-AZR-
- 3 Log in to vRealize Business for Cloud as the system administrator.
- 4 Open the `azure.properties` file from `/usr/local/tcserver/vfabric-tc-server-standard/itbm-server/conf/`.
- 5 Add an entry for your subscription.
The entry must be in the **subscription-display-name=code** format.
To add an entry for Pay-As-You-Go offer type, enter **Pay-As-You-Go=0003P**.
- 6 Restart the vRealize Business for Cloud services to apply the changes by running the `monit restart itbm-server` command .

Unable to Add EMC SRM Storage Servers

You are unable to add an EMC SRM storage server to vRealize Business for Cloud.

Problem

On the **Administration** tab in vRealize Business for Cloud, attempts to add an EMC SRM storage server fail.

Cause

vRealize Business for Cloud is unable to communicate with EMC SRM server.

Solution

- 1 Ensure that the URL of SRM server you provided on the Add window 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.
 - 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 permissions to access SRM reports and ReportManagerService by using a SOAP client or in SRM application.

Storage Array Details Do Not Appear

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

Problem

- When you click the **Status** option, you see a synchronization failure message in the EMC SRM servers section.
- After adding EMC SRM servers, vRealize Business for Cloud does not display the storage array and its related details. No error is reported in the `/var/log/vrb/data-collector/itfm-srm-dc.log` log file.

Cause

- vRealize Business for Cloud has not collected the complete data for SRM storage or the data collection is still in progress.
- ReportManagerService might not be returning SRM storage data to vRealize Business for Cloud.

Solution

- To resolve the problem, perform the applicable step out of the following solutions.
 - Verify that the storage arrays are added to SRM in the SRM user interface.
 - Ensure that the storage data collection process is complete by verifying the updated timestamp for the storage server data collection in the system status window.
By default, SRM storage data collection happens on daily basis.
 - After adding the SRM server to vRealize Business for Cloud, wait for a few hours to complete data collection. For more information about any 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.watch4net.com/APG/Web/XmlTree1" name="List of arrays" order="2" singleNodeId="3820e72f" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <property xsi:type="PropertyNodeColumn" name="System Name" property="device"/> <property xsi:type="PropertyNodeColumn" name="Serial #" sortMode="asc#1" property="serialnb"/> <property xsi:type="PropertyNodeColumn" name="IPs" property="ip"/> <property xsi:type="PropertyNodeColumn" name="Model" property="model"/> <property xsi:type="PropertyNodeColumn" name="Array Type" property="arraytyp"/> <property xsi:type="ValueNodeColumn" name="Array Usable Capacity" filterExpression="(name=='ConfiguredUsableCapacity' | name== 'NASFSCapacity')& ! (parttype)" period="3600" forcePeriod="never" timeThreshold="2"/> <property xsi:type="NodePropertyNodeColumn" name="System Type" sortMode="asc" nodeProperty="expandedNames[1]"/> <formula formulaId="util.ChildCount"> <result name="Count" default="false" graphable="false"/> </formula> <node name="array" singleNodeId="f9dc2ffc"> <property xsi:type="NodeExpansion" expandOn="device,datatype"/> <property xsi:type="NodeFilter" filterExpression="name=='Availability' & vstatus='active'"/> <property xsi:type="ReportPreferences" defaultMode="mix" displayedProperties="model[Model] serialnb[Serial number] partvrs[Operating Environment]"/> <property xsi:type="NodePropertyNodeColumn" name="Component" nodeProperty="name"/> <property xsi:type="NodePropertyNodeColumn" name="Description" nodeProperty="reportPreferences.description"/> <property xsi:type="ValueNodeColumn" name="Count" resultName="Count" forcePeriod="true" timeThreshold="600" roundingAccuracy="0"/> </node> </node>
```

The Computed LUN Rate Does Not Match the Actual Rate

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

Problem

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

Cause

The service level policies are not applied on LUNs.

Solution

For information about how to define service level weightage value, see the Edit Service Level Weightage section in *vRealize Business for CloudUser' Guide*.

Procedure

- Verify that the service level policies are defined in SRM.
- Verify that the service level weightage is defined.

Error While Filtering Reports

An error appears when you filter reports in vRealize Business for Cloud.

Problem

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

Solution

- ◆ Change the maximum size of the request and response HTTP header to a value greater than or equal to **64000** bytes in the `server.xml` file at `/usr/local/tcserver/vfabric-tc-server-standard/itbm-server/conf/`.

```
maxHttpHeaderSize="65536"
```

Unable to Restart Services by Using the `monit restart all` Command

When you change the vRealize Business for Cloud host name, you cannot use the `monit restart all` command to restart the services on the host.

Problem

After you change the vRealize Business for Cloud host name, when you run the `monit restart all` command, the monitored services do not restart.

Cause

The `monit` command cannot identify the host because of the name change.

Solution

- ◆ Run the command to restart the `monit` service.

```
systemctl restart monit
```

Monit registers the new name of the host and enables you to use the `monit` commands.

Registration of vRealize Business for Cloud with VMware Identity Manager Fails

The vRealize Business for Cloud registration with VMware Identity Manager fails.

Problem

When you attempt to register vRealize Business for Cloud with VMware Identity Manager, the registration process might fail.

Cause

Registration attempts might fail because of several reasons.

- Incorrect host name or the IP address
- Certificate mismatch because of using IP address entry, instead of using the host name
- Incorrect credentials
- Insufficient user permissions

Solution

- Verify the host name or the IP address.

- During registration process, enter the host name of the virtual appliance, instead of the IP address.
- Verify the user credentials.
- Verify that the user has the administrator role.

Unable to Log In to VMware Identity Manager

When you attempt to log in to VMware Identity Manager as administrator for managing user accounts, the log in might fail.

Problem

You might be unable to log in to VMware Identity Manager as administrator for adding, modifying or deleting user accounts.

Cause

- Incorrect credentials
- Problem with VMware Identity Manager

Solution

- ◆ To resolve this problem, perform the applicable step out of the following solutions.
 - Verify the user credentials matches the credentials that you provided during VMware Identity Manager deployment.
 - Check for any problem in the VMware Identity Manager server.

Troubleshoot the Warning Message About vRealize Business for Cloud Access Permissions

After you log in to vRealize Business for Cloud, you might see a message to contact system administrator for the required roles.

Problem

When you log in to vRealize Business for Cloud, you might see the following message on the Overview page:

You are not associated with any of the vRealize Business for Cloud roles. Contact the system administrator to add your user name in a vRealize Business group for the appropriate access."

Cause

You are not assigned the required vRealize Business for Cloud roles.

Solution

- 1 Log in to the VMware Identity Manager virtual appliance at https://VMware_Identity_Manager_hostname as an administrator.
- 2 Click **Users & Groups**.

You can see the following vRealize Business for Cloud roles in the list.

- **VCBM_ALL**, which has the administrator privileges.
- **VCBM_VIEW**, which has the read-only privileges.

- 3 Select the vRealize Business for Cloud role that you want to assign to a user.
- 4 Select **Users in This Group** and click **Modify Users in This Group**.

- 5 Search for and select the user name to which you want to add the role.
- 6 Click **Next**.
You see the name of the user in the Users Being Added section.
- 7 Click **Save**.
The user name is added to the Users in this Group table.

Redirecting to VMware Identity Manager Might Fail

During vRealize Business for Cloud login, the redirection to VMware Identity Manager might fail.

Problem

If you have registered vRealize Business for Cloud with VMware Identity Manager, when you attempt to login into vRealize Business for Cloud, you might see the following error: `This site can't be reached`

Cause

- The VMware Identity Manager server is not reachable.
- The VMware Identity Manager hostname might have changed.
- The `itfm-oauth.properties` file at `/usr/local/tcserver/vfabric../itbm-server/conf` might have been modified.

Solution

- ◆ To resolve this problem, perform the applicable step out of the following solutions.
 - Verify that the VMware Identity Manager server is up and running.
 - Re-register vRealize Business for Cloud with the VMware Identity Manager.

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