This document supports the version of each product listed and supports all subsequent versions until the document is replaced by a new edition. To check for more recent editions of this document, see http://www.vmware.com/support/pubs.
You can find the most up-to-date technical documentation on the VMware Web site at:

http://www.vmware.com/support/

The VMware Web site also provides the latest product updates.

If you have comments about this documentation, submit your feedback to:

docfeedback@vmware.com
## Contents

IT Business Management Standard Edition Installation and Administration Guide 5

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

2 Installing IT Business Management Standard Edition 13  
   IT Business Management Standard Edition System Requirements 13  
   IT Business Management Standard Edition Deployment Scenarios and Best Practices 14  
   Deploy IT Business Management Standard Edition in vSphere 15  
   Deploy IT Business Management Standard Edition in vCloud Director 16  
   Start the IT Business Management Standard Edition Appliance 18  
   Configure IT Business Management Standard Edition with vCloud Automation Center 18  
   Create a Tenant in vCloud Automation Center User Interface 19  
   Access IT Business Management Standard Edition by Using vCloud Automation Center 20  
   Unregister IT Business Management Standard Edition from vCloud Automation Center 21  
   Configure Time Synchronization 22  
   Change or Replace SSL Certificates 22

3 Setting Up IT Business Management Standard Edition 25  
   IT Business Management Standard Edition Administration 25  
   View and Update System Status 33

4 Upgrading IT Business Management Standard Edition 35  
   Upgrade IT Business Management Standard Edition by Using Web Console 35

5 Troubleshooting IT Business Management Standard Edition 37  
   Error While Accessing Business Management Tab 37  
   vCloud Automation Center Synchronization Job Fails 38  
   Business Management tab does not appear 38  
   IT Business Management Standard Edition and vCloud Automation Center Connection Failure 39  
   IT Business Management Standard Edition Displays an Exception while Parsing XML Documents 39  
   vCloud Director-Based Categorization Issues 40  
   HTTP Error 401 Unauthorized Occurs While Accessing the Business Management Tab 40  
   Storage Synchronization Failure 41

Index 43

Intended Audience

This information is intended for anyone who wants to install and configure IT Business Management Standard Edition. 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.
VMware IT Business Management Standard Edition 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
- “IT Business Management Standard Edition 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 what is it comprised of?
- What is the cost of delivering a unit of IaaS?
- Who consumes these services and at what cost?
- 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 showback report to show it to the stakeholders

IT Business Management Standard Edition Goals

IT Business Management Standard Edition provides business management and cost transparency capabilities to your virtual infrastructure and public cloud.

- Determine pricing of vCloud Automation Center 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 that are available in your hybrid cloud environment.
- Provide showback cost of virtual machine and blueprints based on business unit and application group across the hybrid cloud environment.
As infrastructure stakeholders, lets you manage costs based on capital expenditure and operating expenditure.

Get accurate cost of virtual machines without performing any financial configuration.

**IT Business Management Standard Edition Architecture**

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

The architecture illustrates the three main components of IT Business Management Standard Edition, the server, data collector, and reference database.

*Figure 1-1. IT Business Management Standard Edition Architecture*

**IT Business Management Standard Edition Server**

IT Business Management Standard Edition server is based on a tc Server instance, running Spring container and communicating through a JPA and Hibernate (on top of JDBC) to vPostgress database that runs IT Business Management Standard Edition schema. vCloud data collector collects infrastructure events and usage statistics from the vCenter Server and places the infrastructure events and usage statistics into the
local Postgres database. Then the server consumes the data from the Postgres database.

IT Business Management Standard Edition server runs Quartz instance and schedules hourly, daily, and monthly jobs. IT Business Management Standard Edition user interface and all its external APIs return the costs calculated by the periodic jobs.

1. When a job starts, the job collects inventory, usage information, user changes to cost formulas that were made prior to starting the job, and most current defaults from the reference database.

2. The job then invokes series of calculation steps on the data, without interfering with ongoing inventory or user changes. When recalculation is finished, the costs are updated.

**Table 1-1. Server Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory and Usage Service</td>
<td>Receives information from data collector, stores the information, and provides APIs for servers, virtual machines, other inventory elements, and their usage statistics.</td>
</tr>
<tr>
<td>Inventory Statistics</td>
<td>Aggregates inventory information for cost calculation and allocation.</td>
</tr>
<tr>
<td>Cost Drivers</td>
<td>Calculates costs that do not involve a usage parameter. The module has a user interface that lets you configure various parameters of cost calculation. IT Business Management Standard Edition has eight cost drivers, server, storage, operating system, maintenance, labor, network, facilities, and other.</td>
</tr>
<tr>
<td>Cost Allocation</td>
<td>Calculates the cost of a virtual machine according to up-time and usage. You can also configure some allocation parameters.</td>
</tr>
<tr>
<td>Consumer Allocation</td>
<td>Allocates costs according to tags of the virtual machine or according to mapping provided by the user.</td>
</tr>
<tr>
<td>Planning</td>
<td>Calculates the expected cost of existing inventory from Amazon and Azure.</td>
</tr>
<tr>
<td>Public Cloud Report</td>
<td>Provides you with a summary of the infrastructure that are deployed on a public cloud provider (for example Amazon).</td>
</tr>
<tr>
<td>Reference Database</td>
<td>Holds known configurations and default costs for each configuration, vendor, and geography.</td>
</tr>
</tbody>
</table>

**Data Collector**

This component is responsible for connecting to vCenter Server instances and retrieving both inventory information (servers, virtual machines, clusters, storage devices, and associations between them) and usage (CPU and memory) statistics.

**Reference Database**

This component is responsible for producing default, out-of-the-box costs for each of the supported cost drivers. References are updated periodically, and user can download the latest data set and import the data set into IT Business Management Standard Edition. The new values affect cost calculation. Reference data that is used depends on currency selection that you select when installing the product.

**Communication Between Data Collector and the Server**

Data collector and the server communicate through a database. Data collector writes to the database and the server reads the data. Data collector keeps inventory information time stamped, so it is possible to retrieve and view the inventory back in time. The architecture of data collector tables is flexible, and stores properties retrieved from the vCenter Server in key-value pairs. In some cases, the server converts this data into specific relations, and performs aggregation operations.
Communication Between Server and Reference Database

Reference database is a compressed and encrypted file, which the users can download and install manually. You can update the most current version of reference database. For more information, see “Update the Reference Database for IT Business Management Standard Edition,” on page 30.

Other Sources of Information

These sources are optional, and are used only if installed and configured. The sources include vCloud Automation Center, vCloud Director, vCenter Operations Manager, and Amazon Web Services (AWS).

Data Input Synchronization

The system picks up the data from the external sources continuously and periodically updates the tables, which are used to display the data and generate the report. This update occurs daily, but can also be triggered by changes in the user interface and major changes in the inventory, such as when you initialize a system or add a new vCenter Server.

External Interfaces

<table>
<thead>
<tr>
<th>Interface</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vCloud Automation Center</td>
<td>Call the IT Business Management Standard Edition to get the base rates.</td>
</tr>
<tr>
<td>IT Business Management Advanced and Enterprise Edition</td>
<td>Can receive inventory information, which is used as a basis for cost model creation. A special HTTPS API is designated for IT Business Management Advanced and Enterprise Edition.</td>
</tr>
</tbody>
</table>

Supported Product Integrations

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

VMware vSphere

IT Business Management Standard Edition 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 profiles, storage capacity, and vCenter Server attributes and tags.

VMware vCloud Director

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

Note: The cost of virtual machine does not change whether you see the virtual machine as part of vCenter Server or vCloud Director.
VMware IT Business Management Advanced and Enterprise Edition

IT Business Management Standard Edition exposes APIs to let the third-party systems to extract data in a CSV format. The information includes object properties along with costs and allocations around virtual machines, physical servers, datastores, and the public cloud.
IT Business Management Advanced and Enterprise Edition uses these APIs to collect private and public cloud information, which can be used in cost models and reports.

VMware vCenter Operations Manager

IT Business Management Standard Edition does not have any direct integration with vCenter Operations Manager. In an environment where vCenter Operations Manager 5.x is installed, IT Business Management Standard Edition gets the expected CPU and memory utilization for each cluster or unclustered ESXi host from vCenter Operations Manager. Otherwise, you can set the expected CPU and memory utilization for the host by using the system defined value, which is computed by using historical averages, 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.

Note IT Business Management Standard Edition does not support integration with vCenter Operations Manager 6.x version.

VMware vCloud Automation Center

IT Business Management Standard Edition has tight integration with vCloud Automation Center. IT Business Management Standard Edition appears as a tab, named as Business Management, in the vCloud Automation Center user interface shell. IT Business Management Standard Edition uses the common services of vCloud Automation Center such as SSO authentication and authorization. The Infrastructure as a Service (IaaS) component of vCloud Automation Center consumes the base rate APIs of IT Business Management Standard Edition to compute blueprint price of virtual machine.
IT Business Management Standard Edition also has data integration with IaaS component of vCloud Automation Center. You can define rules and categorize according to vCloud Automation Center hierarchy. For more information, see Demand Analysis in the IT Business Management Standard Edition User’s Guide.

Amazon Web Services and Microsoft Azure

IT Business Management Standard Edition provides the users of IT Business Management Standard Edition an overview of how their investments are being spread across Amazon Web Services (AWS) and Microsoft Azure public cloud. IT Business Management Standard Edition integrates with AWS and Microsoft Azure and provides detailed analysis of the bills of AWS and Microsoft Azure.
Installing
IT Business Management Standard Edition

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

This chapter includes the following topics:

- “Deploy IT Business Management Standard Edition in vSphere,” on page 15
- “Deploy IT Business Management Standard Edition in vCloud Director,” on page 16
- “Start the IT Business Management Standard Edition Appliance,” on page 18
- “Create a Tenant in vCloud Automation Center User Interface,” on page 19
- “Unregister IT Business Management Standard Edition from vCloud Automation Center,” on page 21
- “Configure Time Synchronization,” on page 22
- “Change or Replace SSL Certificates,” on page 22

IT Business Management Standard Edition System Requirements

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

IT Business Management Standard Edition Disk and Memory Requirement

IT Business Management Standard Edition requires a minimum of 50GB of disk space, 4GB memory, and 2 vCPU.

Port Requirements

Following ports should be open for communication between different entities.

<table>
<thead>
<tr>
<th>Port</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>443</td>
<td>For IT Business Management Standard Edition user interface connection through HTTPS</td>
</tr>
<tr>
<td>22</td>
<td>For external SSH connection</td>
</tr>
<tr>
<td>Port</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>5432</td>
<td>For vPostgres instance. By default, this port is used with loopback address and not accessible to outside world.</td>
</tr>
<tr>
<td>5480</td>
<td>For Web console access</td>
</tr>
</tbody>
</table>

**Virtualization Software Requirements**

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

- vCloud Automation Center 6.1.x release. See vCloud Automation Center documentation.

**NOTE** If you want to deploy IT Business Management Standard Edition on VMware vCloud Director, verify that VMware vCloud Director 5.1 or later is already deployed in your environment.

The IT Business Management Standard Edition user interface appears as the **Business Management** tab on the vCloud Automation Center user interface shell.

**Web Interface Support**

Because IT Business Management Standard Edition is integrated with vCloud Automation Center, you can use all of the browsers that vCloud Automation Center supports.

- Microsoft Internet Explorer 10.0. In Internet Explorer, select **Tools > Compatibility View Settings** and disable the **Disable intranet sites in Compatibility View** check box.
- Google Chrome 30.0 and 31.0.
- Mozilla Firefox 24.0 and 25.0.

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 IT Business Management Standard Edition user interface. If you set the resolution to 1024x768 or lower, you might not see all the options on the user interface such as, **System Status** and **Help** and also tabs such as, **Public clouds** and **Reports**. To view the complete IT Business Management Standard Edition Standard user interface, zoom out the browser or increase the screen resolution.

**IT Business Management Standard Edition Deployment Scenarios and Best Practices**

You can deploy the IT Business Management Standard Edition appliance on vCloud Automation Center standalone and on vCloud Automation Center with the Infrastructure as a Service (IaaS) component integrated.

**IT Business Management Standard Edition Standalone**

1. Deploy and configure VMware identity virtual appliance (SSO).
2. Deploy the vCloud Automation Center virtual appliance and configure to point to identity virtual appliance.
3 Deploy the IT Business Management Standard Edition virtual appliance and then register it with vCloud Automation Center. For more information, see vCloud Automation Center Installation Guide for 6.1.

**IT Business Management Standard Edition with vCloud Automation Center**

If vCloud Automation Center is present in your environment, deploy the IT Business Management Standard Edition virtual appliance and register with existing vCloud Automation Center.

**Best Practices**

- Deploy IT Business Management Standard Edition in the same LAN where your vCenter Server setups are deployed.
- Do not deploy the setups over a WAN. Performance over WAN in such cases might be degraded.

**Deploy IT Business Management Standard Edition in vSphere**

You can deploy the IT Business Management Standard Edition virtual appliance by using vSphere Client on the vCenter Server. The IT Business Management Standard Edition virtual appliance is in an OVA format.

**Prerequisites**

- Log in to the vSphere Client as a user with administrator privileges.
- Verify that your system meets all the requirements as described in “IT Business Management Standard Edition System Requirements,” on page 13.
- Verify that you have deployed and configured the VMware identity virtual appliance in your cloud environment. See *vCloud Automation Center Installation Guide*.
- Verify that you have deployed and configured the vCloud Automation Center virtual appliance in your cloud environment. See *vCloud Automation Center Installation Guide*.

**Procedure**

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

- Set the root user password for your appliance.
- Select the currency of your choice. The default current is US dollar.

<table>
<thead>
<tr>
<th>Currency Name</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Dollar</td>
<td>USD</td>
</tr>
<tr>
<td>Euro</td>
<td>EUR</td>
</tr>
<tr>
<td>British Pound</td>
<td>GBP</td>
</tr>
<tr>
<td>Australian Dollar</td>
<td>AUD</td>
</tr>
<tr>
<td>Canadian Dollar</td>
<td>CAD</td>
</tr>
<tr>
<td>Singapore Dollar</td>
<td>SGD</td>
</tr>
<tr>
<td>Japanese Yen</td>
<td>JPY</td>
</tr>
<tr>
<td>Indian Rupee</td>
<td>INR</td>
</tr>
<tr>
<td>Israeli Shekel</td>
<td>ILS</td>
</tr>
<tr>
<td>New Zealand Dollar</td>
<td>NZD</td>
</tr>
</tbody>
</table>

NOTE: If you do not select a currency, US Dollar (USD) is selected by default.

- Select Enable SSH Service option for remote access to virtual machine Linux console.
- 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 IT Business Management Standard Edition virtual appliance might take few minutes.

What to do next


Deploy IT Business Management Standard Edition in vCloud Director

To install IT Business Management Standard Edition in vCloud Director, you must download the appliance. For information about adding vApps, see the vCloud Director documentation.

Prerequisites

- Log in to the vCloud Director as a user with administrator privileges.
- Verify that the system meets all the requirements as described in “IT Business Management Standard Edition System Requirements,” on page 13.
- Verify that you have deployed and configured the VMware identity virtual appliance in your cloud environment. See vCloud Automation Center Installation Guide.
- Verify that you have deployed and configured the vCloud Automation Center virtual appliance in your cloud environment. See vCloud Automation Center Installation Guide.
- Convert OVA format to OVF format. See https://www.vmware.com/support/developer/ovf/. Verify that the .ovf and .vmdk files are in the same folder.
Procedure

1. Log in to vCloud Director and select the organization in which to deploy IT Business Management Standard Edition.
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.
   - Set the currency for the IT Business Management Standard Edition appliance.

<table>
<thead>
<tr>
<th>Currency Name</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Dollar</td>
<td>USD</td>
</tr>
<tr>
<td>Euro</td>
<td>EUR</td>
</tr>
<tr>
<td>British Pound</td>
<td>GBP</td>
</tr>
<tr>
<td>Australian Dollar</td>
<td>AUD</td>
</tr>
<tr>
<td>Canadian Dollar</td>
<td>CAD</td>
</tr>
<tr>
<td>Singapore Dollar</td>
<td>SGD</td>
</tr>
<tr>
<td>Japanese Yen</td>
<td>JPY</td>
</tr>
<tr>
<td>Indian Rupee</td>
<td>INR</td>
</tr>
<tr>
<td>Israeli Shekel</td>
<td>ILS</td>
</tr>
<tr>
<td>New Zealand Dollar</td>
<td>NZD</td>
</tr>
</tbody>
</table>

*NOTE* If you do not select a currency, US Dollar (USD) is selected by default.

- Select Enable SSH Service option for remote access to virtual machine Linux console.
7. In the Custom Hardware pane, click Next.
8. In the Ready to Complete pane, click Finish.
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 the IT Business Management Standard Edition Appliance

You must start the newly added vCloud Director vApp or vSphere virtual machine 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 14.

**Procedure**

   - From vCloud Director, double-click the vApp and select **Popout Console**.
   - From the vSphere Client, locate the powered on virtual machine and click the **Console** tab.
2. Wait for few minutes for appliance to start completely and then press **Enter**.
3. Login to the appliance by using root user password that you have defined at the time of deployment.
4. Navigate to the appliance URL by using a supported browser.
5. Type the user name and password of the virtual appliance and click **Login**.

Configure IT Business Management Standard Edition with vCloud Automation Center


**Prerequisites**

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

**Procedure**

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

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

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

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

**Note** If you change the certificate of vCloud Automation Center, you need to again register IT Business Management Standard Edition with IT Business Management Standard Edition.

Create a Tenant in vCloud Automation Center User Interface

To access the IT Business Management Standard Edition through the vCloud Automation Center user interface, you must create a IT Business Management Standard Edition tenant in vCloud Automation Center.

**Prerequisites**

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

**Procedure**

1. Log in to the vCloud Automation Center user interface at https://vCloud_Automation_Center_host_name/vcac.  
   Use SSO administrator credentials to log in.

2. On the Tenants tab, click the Add Tenant icon.

3. On the General tab, type the details of your tenant and click Next.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Type the name of the tenant.</td>
</tr>
<tr>
<td>Description</td>
<td>(Optional) Type the description of the tenant.</td>
</tr>
<tr>
<td>URL Name</td>
<td>Type the URL name that identifies the tenant.</td>
</tr>
<tr>
<td>Contact Email</td>
<td>(Optional) Type an email address of the user.</td>
</tr>
</tbody>
</table>

4. To provide LDAP or active directory details, on the Identity Stores tab, click the Add Tenant icon.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of your LDAP or active directory server.</td>
</tr>
<tr>
<td>Type</td>
<td>Type of authentication, open LDAP or active directory.</td>
</tr>
<tr>
<td>URL</td>
<td>URL for Open LDAP or active directory. For open LDAP and active directory, use the format ldap://host name:port or ldaps://host name:port</td>
</tr>
<tr>
<td>Domain</td>
<td>Domain DNS name.</td>
</tr>
<tr>
<td>Domain Alias</td>
<td>Domain NetBIOS name.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Login User DN</td>
<td>Name of the domain that user logs in to.</td>
</tr>
<tr>
<td>Password</td>
<td>Password for authentication purpose.</td>
</tr>
<tr>
<td>Group Search Base DN</td>
<td>Base domain name for groups.</td>
</tr>
<tr>
<td>User Search Base DN</td>
<td>Base domain name for users.</td>
</tr>
</tbody>
</table>

5 Click Test Connection.
If the connection is successful, the Connection is available message appears.

6 Click Add and click Next.

7 On the Tenant Admins tab, select users and groups from your identity stores to grant the tenant administrator role.

8 Click Add.

9 Log out from the application.

**Example: Values to Set an LDAP or Active Directory Connection**

<table>
<thead>
<tr>
<th>Option</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>URL</td>
<td>ldap://IP address:389</td>
</tr>
<tr>
<td>Domain</td>
<td>example.com</td>
</tr>
<tr>
<td>Domain Alias</td>
<td>example</td>
</tr>
<tr>
<td>Login User DN</td>
<td>cn=admin,dc=example,dc=com</td>
</tr>
<tr>
<td>Group Search Base DN</td>
<td>dc=example,dc=com</td>
</tr>
<tr>
<td>User Search Base DN</td>
<td>dc=example,dc=com</td>
</tr>
</tbody>
</table>

**Access IT Business Management Standard Edition by Using vCloud Automation Center**

You can access the IT Business Management Standard Edition user interface after logging in to the vCloud Automation Center user interface. IT Business Management Standard Edition user interface appears as a tab in the vCloud Automation Center user interface.

**Prerequisites**

Verify that you have created a IT Business Management Standard Edition tenant. See “Create a Tenant in vCloud Automation Center User Interface,” on page 19.

**Procedure**

1 Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ecac/org/tenant_URL by using credentials of a tenant administrator.

2 Click the Administration tab.

3 Click Users.

4 Search and select the user to which you want to add the role.

5 From the Add Roles to this User box, assign the Business Management Administrator or Business Management Read only user privileges to the user.

6 Click Update.
7 Refresh the browser.

   The **Business Management** tab is available in the vCloud Automation Center user interface.

**What to do next**


### Unregister IT Business Management Standard Edition from vCloud Automation Center

If you want to deploy a new version of IT Business Management Standard Edition appliance, you need to first unregister the earlier instance of IT Business Management Standard Edition appliance from vCloud Automation Center.

**Procedure**


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

3 On the **vCloud Automation Center** tab, type the credentials of already registered vCloud Automation Center server.

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

4 Click **Unregister**.

If all the parameters are correct, a **Unregistered with vCloud Automation Center server** message is displayed.

**NOTE** If vCloud Automation Center certificate has changed, unregister IT Business Management Standard Edition from vCloud Automation Center fails. To avoid the failure, unregister and then re-register IT Business Management Standard Edition with vCloud Automation Center.

**What to do next**

Follow the process of deploying the IT Business Management Standard Edition appliance as described in “Deploy IT Business Management Standard Edition in vSphere,” on page 15.
Configure Time Synchronization

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

Procedure

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

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

5. Click Save Settings.
6. Verify that the value in Current Time is correct.
7. Click Refresh to refresh the updated time settings and current time.

Change or Replace SSL Certificates

After deployment, you can replace certificates. You can change from self-signed certificates to trusted certificates. You can manually create a new Java SSL key store with the private key and import the certificate that is issued by Certifying Authority (CA).

Prerequisites

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

Procedure

2. On the Administration tab, select SSL.
3 Select the certificate type from the **Choose Mode** menu. If you are using a PEM encoded certificate, for example for a distributed environment, select **Import PEM encoded certificate**.

**NOTE** Using self-signed certificates is not recommended for production environments.

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

4 Click **Replace Certificate**.

Setting Up
IT Business Management Standard Edition

After you deploy IT Business Management Standard Edition, you must manage the vCenter Server instances by adding them to IT Business Management Standard Edition. You can also update the reference database, manage vCloud Director instances, manage public cloud accounts, download a support file, and update the license key for IT Business Management Standard Edition.

This chapter includes the following topics:

- “IT Business Management Standard Edition Administration,” on page 25
- “View and Update System Status,” on page 33

IT Business Management Standard Edition Administration

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

You can perform operations like adding vCenter Server instances, updating a reference database, updating the license key, and downloading support file information.

- Add vCenter Server to IT Business Management Standard Edition by entering vCenter Server details. You can add up to four vCenter Server instances.
- Add vCloud Director to IT Business Management Standard Edition by entering vCloud Director details.
- Manage public cloud accounts, Amazon Web Services (AWS) and Microsoft Azure.
- Manage cloud providers for comparison purpose. 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 references database manually or by running an auto update feature.
- Download the support file containing critical runtime information about the system.
- Update the license key.
- Generate a token that you can use to define a connection between IT Business Management Advanced and Enterprise Edition and IT Business Management Standard Edition.
- Provide the CPU, RAM, and storage unit rates to vCloud Automation Center. vCloud Automation Center uses an API to compute the blueprint price of a virtual machine.

**NOTE** This data is not used anywhere in IT Business Management Standard Edition for any form of cost computation.
Add vCenter Server Instances

After you install IT Business Management Standard Edition, you can add a vCenter Server instance to IT Business Management Standard Edition to enable vCenter Server management and retrieve the inventory information from your virtual environment. You can add up to four vCenter Server instances.

Prerequisites

To add vCenter Server to IT Business Management Standard Edition, you need the credentials of the vCenter Server user. The vCenter Server user must have some additional permissions apart from the normal Read-only role that is assigned to a vCenter Server user. To add additional permissions to the vCenter Server user, perform the following steps.

1. Log into vCenter Server as an administrative user and create a clone of the Read-only role in a vCenter Server.
2. Include the Storage views.View, Profile-driven storage.Profile-driven storage view permissions to this cloned role. Include Global.vCenter Operations User also if you have integrated vCenter Server with VMware vCenter Operations Manager.
3. Create a user in vCenter Server for IT Business Management Standard Edition and assign this cloned role to the user.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Click the General link.
   - This link is selected by default.
5. Under Manage vCenter Server connections, click the + icon.
6. Type a name for the vCenter Server, IP address, user name, and password of the vCenter Server that you want to add.
7. Click Save.
   - A dialog with untrusted SSL certificate is displayed.
8. Click Install.
   - If the credentials are valid, vCenter Server is added to the IT Business Management Standard Edition. Refresh the browser to view the added vCenter Server.

---

**NOTE**  After addition of vCenter Server to IT Business Management Standard Edition, if the vCenter Server certificate changes, data collection fails because vCenter Server presents a new certificate, which might again be untrusted. You must add the vCenter Server again and accept the new vCenter Server certificate. You can edit the vCenter Server details by clicking the + icon and then accept the new vCenter Server certificate.

You can perform the same procedure to add multiple vCenter Server instances from different vCenter Server.
Edit or Delete vCenter Server Instances

You can edit or delete vCenter Server instances from IT Business Management Standard Edition. You can use the edit functionality to update the vCenter Server information after certificate of vCenter Server changes.

**Procedure**

1. Log in to the vCloud Automation Center interface at `https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL` by using credentials of a tenant administrator.
2. Click the **Administration** tab.
3. Click **Business Management**.
4. Click the **General** link. This link is selected by default.
5. To edit the vCenter Server, click the ✉️ icon.
6. Modify the details and click **Save**.
7. To delete vCenter Server, click the ❌ icon and click **Save**.
8. (Optional) You can retrieve vCenter Server that you have deleted by clicking **Revert**.

Add vCloud Director Instances

You can add vCloud Director instances to IT Business Management Standard Edition to get vCloud Director based categorization.

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

**Procedure**

1. Log in to the vCloud Automation Center interface at `https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL` by using credentials of a tenant administrator.
2. Click the **Administration** tab.
3. Click **Business Management**.
4. Click the **General** link.
5. Under Manage vCloud Director, click the 📋 icon.
6. Type the IP address, user name, and password of vCloud Director that you want to add.
7. Click **Save**. A dialog with untrusted SSL certificate is displayed.
8 Click Install.

If the credentials are valid, vCloud Director is added to the IT Business Management Standard Edition. Refresh the browser to view added vCloud Director.

**NOTE** If the vCenter Server certificate changes, data collection fails because vCloud Director presents a new certificate, which might again be untrusted. You must add the vCloud Director again and accept the new vCenter Server certificate. You can edit the vCloud Director details by clicking the icon and then accept the new vCenter Server certificate.

### Edit or Delete vCloud Director Instances

You can edit or delete vCloud Director instances from IT Business Management Standard Edition. You can use the edit functionality to update the vCloud Director information after certificate of vCloud Director changes.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Click the General link.
   - This link is selected by default.
5. To edit the vCloud Director, click the icon.
6. Modify the details and click Save.
7. To delete vCloud Director, click the icon and click Save.
8. (Optional) You can retrieve vCloud Director that you have deleted by clicking Revert.

### Manage Amazon Web Services Account

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

**Prerequisites**

Verify that you have an account ID, access key, secret key, and S3 bucket name. For more information, see IT Business Management Standard Edition User’s guide.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Click the General link.
5. Under Manage Public Cloud Account, to add the AWS account details, click the add icon.
6. Type the name, description, account ID, access key, secret key, and S3 bucket name.
7 Click **Save**.

If all the information regarding AWS account that you provided is correct,
IT Business Management Standard Edition adds the AWS account.
IT Business Management Standard Edition starts populating the dashboard information after a few
minutes. Currently, IT Business Management Standard Edition refreshes its data by connecting to AWS
every 30 minutes. You can force run the AWS collection job from the System Status menu.

8 (Optional) To modify the details of an AWS account, click the 🎨 icon, edit the information, and click **Save**.

If the information that you have provided is correct, the AWS account details are modified and saved.

9 (Optional) To delete an AWS account, click the ✗ icon and click **Save**.

You can retrieve the AWS account that you have deleted by clicking **Revert**.

### Create and Manage Microsoft Azure Account

You can create and manage your Microsoft Azure account to compute cost details for your account.

**Procedure**

1 Log in to the vCloud Automation Center interface at
   [https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL](https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL)
   by using credentials of a tenant administrator.

2 Click the **Administration** tab.

3 Click **Business Management**.

4 Click the **General** link.

5 Expand **Manage Microsoft Azure Accounts** and add an account by clicking the 🎨 icon.

6 Provide an account ID and name of your choice, and click **Save**.

7 Click **OK**.

8 To modify the Microsoft Azure account details, click the 🎨 icon, edit the information, and click **Save**.

9 To delete the Microsoft Azure account, click the ✗ icon and click **Continue**.

   A success message is displayed.

10 Click **OK**.

### Manage Cloud Providers

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

**Prerequisites**

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

**Procedure**

1 Log in to the vCloud Automation Center interface at
   [https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL](https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL)
   by using credentials of a tenant administrator.
2 Click the Administration tab.
3 Click Business Management.
4 Under Manage Public Cloud Accounts, select Manage Cloud Providers for Comparison, and click + to add your own public cloud.
5 In the Add Cloud Provider dialog box, update the cloud provider details.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Provider Name</td>
<td>(Optional) Type the cloud provider name.</td>
</tr>
<tr>
<td>URL</td>
<td>(Optional) Type the URL of the cloud provider.</td>
</tr>
<tr>
<td>Logo</td>
<td>(Optional) Upload the logo of your cloud provider.</td>
</tr>
<tr>
<td>Upload settings file</td>
<td>Click the Browse to locate the file link and select the settings file. You can also download the template of the DRL file or the XLS file to enter the configuration of your cloud according to the specified format. To download the template, click You can download the template to start the process.</td>
</tr>
</tbody>
</table>

6 Click Save.

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

What to do next
You can use this account in the Cloud Comparison tab to compare the cost the private cloud cost with other public clouds such as AWS, Azure, or vCloud Hybrid Service.

Update the Reference Database for IT Business Management Standard Edition
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 auto-update process, verify that port 22 is open so that IT Business Management Standard Edition can access SaasFTP.digitalfuel.com to start the auto update process.

Procedure
1 Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2 Click the Administration tab.
3 Click Business Management.
4 Click the General link.
   Under Reference Database, the current version of reference library appears.
5 If an auto update is available, click the 📈 icon, which is displayed next to Status.
   The Reference Database section of Administration page appears.
   a Click Run auto update link.
   b Accept the legal agreement.
   The reference database is updated.
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.

Generate and Download the Support File

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

Procedure

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

2 Click the Administration tab.

3 Click Business Management.

4 Click the General link.

5 Under Support File, click Generate and download file.

6 Save the file.

   The support file is saved as an archive file.

   This Zip file includes the itfm-vc-dc.log, which contains information about data collector issues and itfm.log is an application log file that contains information about all the other processes, thread dump, and other metrics.

Update Licenses for IT Business Management Standard Edition

You can update the license of IT Business Management Standard Edition by using the Update License feature.

Procedure

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

2 Click the Administration tab.

3 Click Business Management.

4 Click the General link.

   Under Update License, IT Business Management Standard Edition displays the current license serial key number, license type, maximum number of virtual machines that the entered license key allows, and the number of virtual machines that are currently running in your environment.

5 In the New Serial text box, type the new license key.

6 Click Update.
If the new license key is valid, the license is updated.

**Generate Token for IT Business Management Advanced and Enterprise Edition Integration**

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

**Procedure**

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

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

**What to do next**


**Compute the Blueprint Price of a Virtual Machine**

You can update the daily prices of vCPU, RAM, and storage prices, which vCloud Automation Center can consume, by using an API to compute the blueprint price of a virtual machine.

vCloud Automation Center cost profile information from IT Business Management Standard Edition that vCloud Automation Center can use to calculate blueprint price of a virtual machine.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Click the Pricing link.
5 Set the daily price for vCPU, RAM, and storage values.

<table>
<thead>
<tr>
<th>Option</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set the same values for cost and price.</td>
<td>Select the Set default prices for computing and storage check box.</td>
</tr>
<tr>
<td>Set your own values for prices of RAM and vCPU.</td>
<td>Select Manually set prices for computing and storage check box.</td>
</tr>
</tbody>
</table>

IT Business Management Standard Edition does not use these values for cost calculation and presentation.

6 Click Save.

The daily prices of vCPU, RAM, and storage are updated. vCloud Automation Center can use these prices to compute the blueprint price of a virtual machine.

**View and Update System Status**

You can view and update the status of critical internal business processes and understand the overall system health. The system processes run periodically to ensure that your inventory and cost data are always current.

- Data collector connects to vCenter Server instances and collects the inventory data and usage statistics. After collection of inventory data and usage statistics finishes, IT Business Management Standard Edition displays timestamp in GMT.
- Cost calculation involves the steps for computing base rates, allocated costs, cost for each virtual machine, classification of virtual machines under Consumers tab and pre-generation of reports. Cost calculation occurs daily, but you can also run the process manually.
- vCloud Automation Center connector collects data about consumers of a virtual machine in terms of blueprints, provisioning groups and tenants from IaaS component of vCloud Automation Center. vCloud Automation Center connection information appears only after you configure IaaS component of vCloud Automation Center.
- Public cloud connection connects to the listed accounts in AWS to collect inventory and usage data. Public cloud connection information appears only after you configure an AWS account.
- vCloud Director connector connects to vCloud Director to collect data about consumers of the virtual machine according to organization and organization vDC. vCloud Director connection information appears only after you add vCloud Director to IT Business Management Standard Edition.

You can also view and update cost calculation and public cloud connection information.

**Procedure**

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

2 Click Business Management.

3 Click Status.

IT Business Management Standard Edition displays the system status information. Information related to data collector, cost calculation, vCloud Automation Center, public cloud connection, and vCloud Director connection is displayed. If all the processes are running correctly a green check mark ✔ is displayed. If any problem with any of the processes occur, a red exclamation icon ⚠ is displayed. To further analyze the issues with the processes, view the itfm-vc-dc.log for data collector process and itfm.log for all the other processes.
4 (Optional) To update the cost calculation and public cloud connection, click **Update now**.
You can upgrade IT Business Management Standard Edition virtual appliance from one version to another without redeploying the virtual appliance.

**Note** You must take a snapshot of the IT Business Management Standard Edition virtual appliance and back up the database before you begin the upgrade procedure.

**Upgrade IT Business Management Standard Edition by Using Web Console**


**Prerequisites**

- Verify that you have upgraded vCloud Automation Center from 6.0.x to 6.1.x.

**Procedure**

1. Log in to the IT Business Management Standard Edition 1.0.x web console.
2. If Update tab is not visible, run the `enable-va-updates.sh` file.
   b. Log into IT Business Management Standard Edition virtual appliance and navigate to the folder where you have copied `enable-va-updates.sh`.
   c. Run the following commands.
      ```
      chmod +x enable-va-updates.sh
      chmod 777 enable-va-updates.sh
      ./enable-va-updates.sh
      ```
   d. Clear the browser cache and log into the IT Business Management Standard Edition web console.
      The Update tab should be visible. Also, the updated version of IT Business Management Standard Edition is available.
3. Click Check Updates to see the available updates and to enable the Install Updates option.
4. Click Install Updates.
5 After successful upgrade, reboot IT Business Management Standard Edition virtual appliance manually.

- Log into the IT Business Management Standard Edition web console, navigate to the System tab, and click Reboot.
- Log into IT Business Management Standard Edition virtual appliance and run the reboot command.

IT Business Management Standard Edition is upgraded.

**Note** After upgrade you might have to perform some configurations to match your earlier setup.

- The SSH service and root access are disabled. You can enable them by clicking **Toggle SSH setting** on the Administration tab in web console.
- The earlier defined data center levels under Demand Analysis have changed. To align with your earlier setup, you can assign the levels to n-1, except for the level 1. For more information about how to edit or modify the level values, see the Categorize vCenter server Hierarchy topic in the *IT Business Management Standard Edition User’s Guide*. 
You can troubleshoot IT Business Management Standard Edition for some of the common problems that might occur when installing or using IT Business Management Standard Edition.

This chapter includes the following topics:

- “Error While Accessing Business Management Tab,” on page 37
- “vCloud Automation Center Synchronization Job Fails,” on page 38
- “Business Management tab does not appear,” on page 38
- “IT Business Management Standard Edition and vCloud Automation Center Connection Failure,” on page 39
- “IT Business Management Standard Edition Displays an Exception while Parsing XML Documents,” on page 39
- “vCloud Director-Based Categorization Issues,” on page 40
- “HTTP Error 401 Unauthorized Occurs While Accessing the Business Management Tab,” on page 40
- “Storage Synchronization Failure,” on page 41

Error While Accessing Business Management Tab

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

Problem

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

Solution

2. Run the `monit restart itbm-server` command.
   
   The server restarts in 20 to 30 seconds. You can find the log file at `/usr/local/tcserver/vfabric-tc-server-standard/itbm-server/logs/itfm.log.`
vCloud Automation Center Synchronization Job Fails

You might be unable to retrieve tenant, blueprints, and business group information from vCloud Automation Center because synchronization job fails.

**Problem**

With the IaaS component of vCloud Automation Center integrated with IT Business Management Standard Edition, the synchronization job shows `java.lang.NullPointerException`.

**Cause**

This problem occurs if you add the vCenter Server to vCloud Automation Center, but the same vCenter Server is not added to IT Business Management Standard Edition.

**Solution**

- Add the vCenter Server that you have added to vCloud Automation Center to IT Business Management Standard Edition.

  After you add the vCenter Server and complete the inventory synchronization in IT Business Management Standard Edition, blueprints, tenants, and business group information becomes available.

Business Management tab does not appear


**Problem**

After registering IT Business Management Standard Edition with vCloud Automation Center and adding Business Management role to the user, Business Management tab does not appear in the vCloud Automation Center user interface. No error is reported in the log file.

**Cause**

This problem occurs because a known issue of restrictions on extension visibility when IaaS component of vCloud Automation Center is not available.

**Solution**

1. Create extension.properties file under `/etc/vcac` and hide the home page tab.

   ```
   shell.disabledExtensions=csp.home
   ```

   You can hide other tabs by using `shell.disabledExtensions=<extension-id>[,<extension-id>]`.

2. Restart the vCloud Automation Center virtual appliance.

IT Business Management Standard Edition and vCloud Automation Center Connection Failure

An error message is displayed after registering IT Business Management Standard Edition with vCloud Automation Center.

Problem

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

Cause

This problem can occur if the IP address of IT Business Management Standard Edition virtual appliance changed after IT Business Management Standard Edition is registered with vCloud Automation Center.

Solution

3. Perform one of the following steps.
   - Re-create the SSL key store file (ssl.keystore) by performing the steps given in the “Change or Replace SSL Certificates,” on page 22.

IT Business Management Standard Edition Displays an Exception while Parsing XML Documents

IT Business Management Standard Edition displays an exception while parsing XML Documents because Java has introduced a counter for each process that limits the XML entity expansions. After the counter reaches its limit, further communication with XML documents might not work.

Problem

This exception occurs because JDK 1.7u45 has a functional bug while parsing XML documents. After the counter reaches the limit of 64000 an exception is displayed.

```
Exception in thread "main" javax.xml.stream.XMLStreamException: ParseError at [row,col]:[1,1]
Message: JAXP00010001: The parser has encountered more than "64000" entity expansions in this document; this is the limit imposed by the JDK.
at com.sun.org.apache.xerces.internal.impl.XMLStreamReaderImpl.setInputSource(XMLStreamReaderImpl.java:219)
at com.sun.org.apache.xerces.internal.impl.XMLStreamReaderImpl.<init>(XMLStreamReaderImpl.java:189)
at com.sun.xml.internal.stream.XMLInputFactoryImpl.getXMLStreamReader(XMLInputFactoryImpl.java:277)
at
```
Solution

- Restart the IT Business Management Standard Edition server by typing `monit restart itbm-server` command.

vCloud Director -Based Categorization Issues

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

Problem

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

Cause

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

Solution

1. Synchronize the vCloud Director process.
   - Restart the IT Business Management Standard Edition service manually.
   - Wait for the next automatic synchronization process. By default, the process runs every one hour.
2. Trigger the global synchronization.
   - Run the synchronization by using the user interface manually.
   - Wait for the next automatic global synchronization process. By default, the process runs once in a day.
3. Go to Demand Analysis and verify for organization-based information.

The information is displayed after successful synchronization process.

HTTP Error 401 Unauthorized Occurs While Accessing the Business Management Tab

After registering IT Business Management Standard Edition with vCloud Automation Center, when you click the Business Management tab, an error message occurs.

Problem

After registering IT Business Management Standard Edition with vCloud Automation Center, if you click the Business Management tab in vCloud Automation Center user interface, an HTTP Error 401 Unauthorized message is displayed.
Cause
This problem occurs if the time is not synchronized between vCloud Automation Center Virtual Appliance and the IT Business Management Standard Edition Virtual Appliance. The time difference between the vCloud Automation Center and IT Business Management Standard Edition Virtual Appliances must not be more than 60 seconds.

Solution
1. To resolve this issue, synchronize the time between the vCloud Automation Center and IT Business Management Standard Edition Virtual Appliances. For more information, see “Configure Time Synchronization,” on page 22.
2. Restart the virtual appliances.

Storage Synchronization Failure
IT Business Management Standard Edition does not collect data because of failure in the storage synchronization process.

Problem
You see the storage synchronization failure message in the System Status menu.

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

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

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

Numerics
401 error 40

A
access user interface 20
accessing IT Business Management Standard Edition 20
add tenant 19
add AWS account 28
add cloud provider 29
add vCenter Server 26
add vCloud Director 27
administer IT Business Management Standard Edition 25
administering IT Business Management Standard Edition 25
Amazon Web Services integration 10
architecture 8
AWS account, addition 28

B
best practices 14
blueprint, unavailable 38
blueprint price, virtual machine 32
business group, unavailable 38
Business Management tab error 38
business management tab, error 37
Business Management Tab 40

C
capital expenditure 7
challenges faced 7
challenges 7
change SSL certificate 22
compute blueprint price 32
configure IT Business Management Standard Edition 18
configuring NTP server 22
cost efficiency 7
cost transparency 7
cost of delivering 7
cost optimization 7
create tenant 19
creating tenant 19

d
data collector, status 33
data input synchronization 8
delete cloud provider 29
delete vCenter Server 27
delete vCloud Director 28
deploy in vCloud Director 16
deploying IT Business Management Standard Edition 15
deployment scenarios 14
disk requirement 13
DNS, setting up 18

Eedit vCenter Server 27
edit vCloud Director 28
error, Business Management tab 38
error 404 37
ESXi requirement 14
external interfaces 8

G
goals, IT Business Management Standard Edition 7

I
IaaS, vCloud Automation Center 14
improve operations 7
installation process 13
installing IT Business Management Standard Edition 13
integration, IT Business Management Advanced and Enterprise Edition 32
intended audience 5
inventory data 33
IT Business Management Standard Edition configuration 18
IT Business Management Standard Edition server 8
IT Business Management Standard Edition troubleshoot 37
troubleshooting 37
upgrade 35
IT Business Management Standard Edition deployment 15
IT Business Management Standard Edition installation 13
IT Business Management Standard Edition redeployment 21
IT Business Management Standard Edition system requirements 13
IT Business Management Standard Edition upgrade 35

K
keystore 22

L
license key, update 25
license update 31
log files 31

M
manage cloud provider 29
manage vCenter Server 26
manage vCenter servers 25
manage vCloud Director 27
memory requirement 13

N
NTP server, configure 22

O
operating expenditure 7
optimize operations 7
organization 40

P
parsing XML documents, error 39
parsing XML documents, exception 39
permissions 41
port requirements 13

R
redeploying IT Business Management Standard Edition 21
reference database 8, 25
reference library 30
reference database update 30
registration failure 39

S
set up IT Business Management Standard Edition 25
setting host name 18
setting DNS 18
space requirement 13
SSH connection 13

SSO tenant 18
SSO admin user 18
SSO admin password 18
starting vApp 18
starting virtual machine 18
storage 41
support file, download 25
support file download 25, 31
supported integrations 10
supported Chrome versions 14
supported Internet Explorer versions 14
supported Mozilla Firefox versions 14
supported web browsers 14
synchronization 41
synchronization job fails 38
synchronization job failure 38
system requirements 13
System Status 41

T
tenant, unavailable 38
tenant addition 19
tenants, creating 19
time synchronization 40
token, generate 32
token generation 32
total spending 7

U
unregister IT Business Management Standard Edition 21
update license 31
update reference database 25, 30
update system status 33
upgrade IT Business Management Standard Edition 35
upgrading IT Business Management Standard Edition 35
upload cost details, Windows Azure 29
using vCloud Automation Center user interface 20

V
vCenter Server addition 26
vCenter Server certificate 27
vCenter Server requirement 14
vCloud Automation Center standalone 14
vCloud Director, synchronization 40
vCloud Director, vCloud Automation Center integration 10
vCloud Automation Center connection failure 39
vCloud Director
  deploying IT Business Management Standard Edition 16
  management 27
vCloud Director certificate 28
vCloud Director integration 10
vCloud Director, categorization 40
view system status 33
virtual appliances 40
virtualization requirements 14
vSphere Web Service, access 13

W
Windows Azure, upload details 29