
	Billing for Microsoft Azure Stack Setup & Configuration Guide.
	Version: 1.0.0.0 API Version: 2.1.6.24  Published: Feb, 28, 2019 

# Contents

Contents.....	2
1. Introduction .....	3
1.1 General Pre-requisites .....	3
2. Deploying Billing Resource Provider .....	5
3. Verifying the Deployment in Azure Stack Portals .....	6
4. Activating the license for Billing.....	7
5. General Upgrade Installation Instructions.....	8
5.1 Pre-Uninstall Steps.....	8
5.2 Uninstallation Steps .....	8
5.3 Installation Steps.....	8
5.3.1 Install Billing API Service .....	8
5.3.2 Install Billing Admin Extension .....	9
5.3.3 Install Billing Tenant Extension .....	9
5.3.4 Install Billing RP .....	9
5.3.5 Install Billing Agent Service .....	9
5.4 Post Installation Steps.....	9
6. Managing Pricing Profiles.....	10
6.1 Configuring A Pricing Profile .....	10
7. Quotas.....	14
7.1 Setting Pricing Profile and Enabling/Disabling Email Notification .....	14
8. Adding Billing Service to Azure Stack Plan .....	16
9. Registering Billing Resource Provider in a Subscription .....	18

# 1. Introduction

The Cloud Assert Billing solution is a tool which can enable chargeback for the resources utilized in Microsoft Azure Stack. It allows the cloud administrator to set prices in Pay-As-You-Go, Fixed payment and hybrid models.

## 1.1 General Pre-requisites

1. Connection to a SQL server
  - a. SQL Server name, in the format, **<IP Address of the SQL Server>/<Instance name>**
  - b. SQL authenticated user credential
  - c. Name of the Billing database

**Note:** Billing Database must be created prior to the deployment and it must be accessible from Azure Stack.

2. Netbios name of the Azure Stack domain (On ASDK, the default is AzureStack)
3. Azure Stack service Admin account credentials (Azure AD account)
  - a. Ensure if the service Admin account has "**Global Administrator**" role
4. Tenant Subscription
  - a. ID of the Tenant Subscription where Cloud Assert components need to be deployed
  - b. Tenant Subscription administrator account credentials
  - c. A tenant subscription created from an Azure Stack Offer/Plan that includes Microsoft Compute, Storage and Network services with default quotas added
  - d. Upon creating the tenant subscription, the Microsoft Compute, Storage and Network services need to be registered from the **Subscription > Resource Providers** blade in the Tenant portal
5. Certificate
  - a. For integrated systems (i.e. multi-node), a .pfx certificate with the following domain, along with the certificate chain (i.e., root authority and any intermediate authorities):  
**\*.cloudassert.<Azure Stack region>.<Azure Stack external FQDN>** should be procured from a public authority.

- b. For ASDK, a .pfx cert generated from Azure Stack privileged endpoint, for the following domain, along with the certificate chain (i.e., root authority and any intermediate authorities): **\*.cloudassert.<Azure Stack region>.<Azure Stack external FQDN>**
  - c. Password for the .pfx certificate
  - d. Certificate is generated (as per step a) for Integrated Systems. For Azure Stack SDK, certificate is generated as a part of the deployment itself
6. Azure Stack cloud administrator credential for Privileged endpoint access E.g., **<Azure Stack domain>\cloudadmin**
7. Download the **Windows 2016 Datacenter** image from the marketplace through the Marketplace Management blade in the Admin portal
8. Install Azure PowerShell version 1.2.11 ([Azure PowerShell](#))

**Note:** Uninstall any Azure Powershell versions other than 1.2.11

## 2. Deploying Billing Resource Provider

1. Sign in to a host that can access the privileged endpoint VM.
  - On Azure Stack Development Kit installations, sign in to the physical host.
  - On multi-node systems, the host must be a system that can access the privileged endpoint.
2. Extract the contents of Billing resource provider to a temporary directory using any extractor tool.
3. Place the generated .pfx file in the **DependencyFilesLocalPath** as follows:
  - Only a single certificate file exists in the DependencyFilesLocalPath
  - The file name must not contain any special characters.
  - The certificate must be placed in the DependencyFilesLocalPath before retrying the deployment
4. Edit the **InstallBilling.ps1** script with the account information and passwords as needed by the script.
5. Open a **new** elevated (administrative) PowerShell console and change to the directory where the files have been extracted. Use a new window to avoid problems that might arise from incorrect PowerShell modules that are already loaded on the system.
6. Run InstallBilling.ps1 script.

**Note:** The system where the script is being run *must* be a Windows 10 or Windows Server 2016 system with the latest version of the .NET runtime installed.

### 3. Verifying the Deployment in Azure Stack Portals

#### Note

After the installation script finishes running, refresh the admin portal to see the Billing extension.

1. In Admin Portal, click on **Resource Groups**. Then select the **system.<location>.cloudassert.billing** resource group and verify if the deployment succeeded.
2. In Tenant Portal, click on **Resource Groups**. Then select the **system.<location>.cloudassert.billing.rp** resource group and verify if the deployment succeeded.

## 4. Activating the license for Billing

To activate the Billing license,

1. Login to the Billing Resource Provider Virtual Machine.
2. Open a **new** elevated (administrative) PowerShell console and change to the directory “C:\temp”.
3. Run ActivateLicense.ps1 script and specify the required parameters.

Parameter name	Description	Comment or default value
<b>LicenseKey</b>	Unique identifier of the License	<i>Required</i>
<b>EmailId</b>	Email Id that is mapped with the License	<i>Required</i>

4. Copy the generated **License.cal** file to the location “C:\inetpub\MgmtSvc-CloudAssertBilling\bin”
5. Recycle the IIS application pool for the site **MgmtSvc-CloudAssertBilling**
6. In Admin Portal, click **Billing > License** blade to see the licensed features and quotas.

The screenshot shows the 'Usage & Billing - License' page in the Microsoft Azure Stack Administration console. The page is divided into several sections:

- Product Information:**
  - Product Name: CloudAssertBilling-Internal-MAS1
  - Product Id: ccf9d55-e425-437f-9b55-7692b4961c53
  - Product Edition: Trial
  - Product Version: --
  - Installed Version: 2.1.5.1
  - Expiration: Jan 01 2020
- Activate License:**
  - Activation Text: NjFR1EMTNBLUFGMzMRDc5MI0wNTRBLUQSNEhQkE3Q1TCQ0Y5
  - Instruction: Activate online by clicking the button above or copy the activation text and send to licensingsupport@cloudassert.com
- Licensed Features:**

Feature	Expiry
Core	Jan 01 2020
UsageExtensibility	Jan 01 2020
WHMCSIntegration	Jan 01 2020
Notifications	Jan 01 2020
StripeIntegration	Jan 01 2020
PricingCatalog	Jan 01 2020
- License Quotas:**

Quota	Allowed	Used
Core		
MaxSubscriptions	10	6
MaxPricingProfiles	10	3
UsageExtensibility		
MaxUsageExtensions	10	0
MaxRecordTypesPerExtension	2	0
Notifications		
MaxNotificationRules	50	8

## 5. General Upgrade Installation Instructions

### 5.1 Pre-Uninstall Steps

- Take a backup of Cloud Assert billing database.
- Take a backup of the following files from their respective locations.

File Name	File Path
Web.config	C:\inetpub\MgmtSvc-CloudAssertBilling
License.cal	C:\inetpub\MgmtSvc-CloudAssertBilling\bin
CloudAssert.WAP.Billing.AgentService.exe.config	C:\Program Files\CloudAssertBilling\CloudAssert.WAP.Billing.AgentService
web.config	C:\inetpub\AzureStack-BillingAdminExtension
web.config	C:\inetpub\AzureStack-BillingTenantExtension
Web.config	C:\inetpub\AzureStack-BillingRP

### 5.2 Uninstallation Steps

- Uninstall existing Usage and Billing installers from Add or Remove Programs on the respective machines.
- Delete '*CloudAssertBilling*' from '*C:\Program Files*' if present after uninstalling Billing Agent Service setup.

### 5.3 Installation Steps

- Extract the billing installers to a desired location.
- To install the Billing API and Agent service components via command line, download the 'setup.bat' file [here](#).
- Copy the initialize.ini file in the following location 'C:\Packages\Plugins\Microsoft.PowerShell.DSC\2.19.0.0\DSCWork\setupBillingConfiguration.0\AzureStack.Billing.Setup.1.0.0\content\Setup\Packages'.
- Place 'setup.bat' and 'initialize.ini' (which are acquired from the above steps) files in the folder where the billing installers have been extracted.

#### 5.3.1 Install Billing API Service

- Open a command prompt as administrator.
- Navigate to the billing installers folder.
- Run 'setup.bat install-api'.



### 5.3.2 Install Billing Admin Extension

- In the command prompt, change the directory to the AdminExtension folder.
- Run the command “CloudAssert.AzureStack.Billing.AdminExtension.deploy.cmd /y”

### 5.3.3 Install Billing Tenant Extension

- In the command prompt, change the directory to the TenantExtension folder.
- Run the command “CloudAssert.AzureStack.Billing.TenantExtension.deploy.cmd /y”

### 5.3.4 Install Billing RP

- In the command prompt, change the directory to the RP folder.
- Run the command “CloudAssert.MAS.Billing.ResourceProvider.deploy.cmd /y”

### 5.3.5 Install Billing Agent Service

- Refresh the admin/tenant portal and verify that Billing extension is working fine.
- Open a command prompt as administrator.
- Navigate to the billing installers folder.
- Run ‘setup.bat install-agent’.

## 5.4 Post Installation Steps

- Download the BillingTool [here](#) and extract it.
- Run the ‘UpdateDatabase’ command in BillingTool.exe as below,

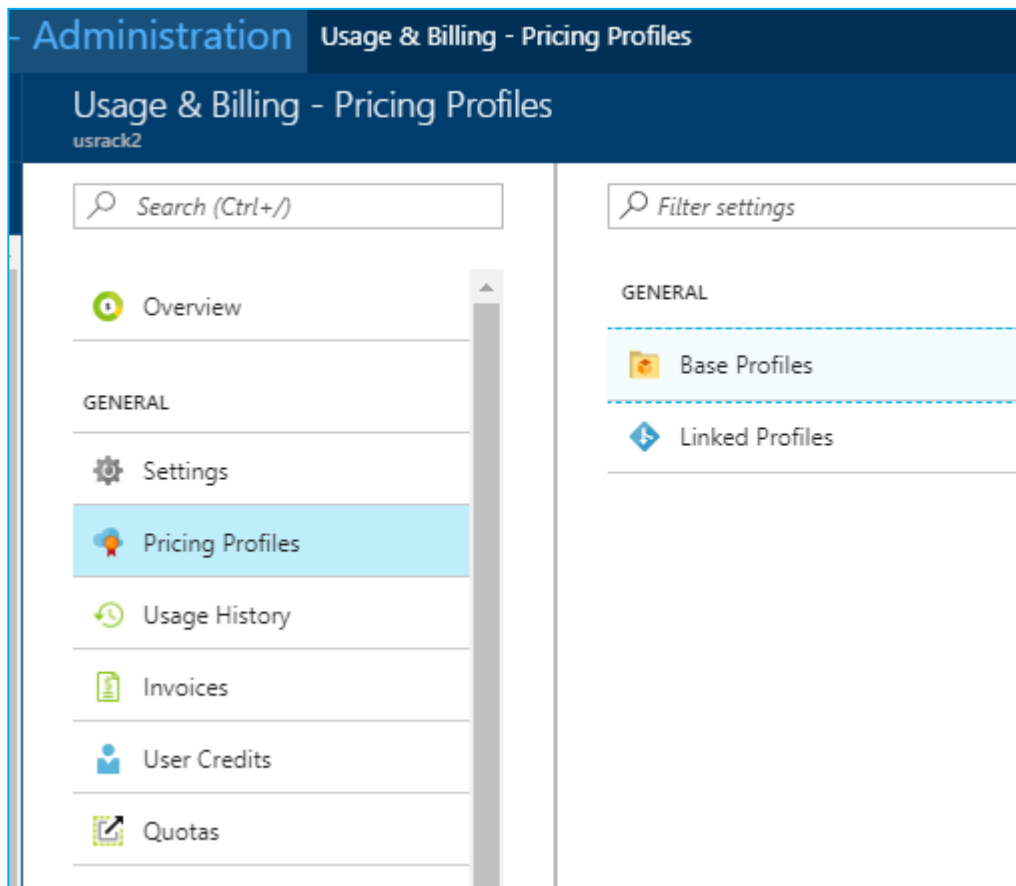
```
C:\Users\billingrpadmin\Desktop\Installers\tool>CloudAssert.Billing.Tool.exe UpdateDatabase /ApiEndpoint:https://billing
.cloudassert.uspack2.azurestack.mas100:44306/ /Username:admin /Password:
CloudAssert.Billing.Tool.exe
Copyright (©) CLOUD ASSERT LLC 2015 - 2018
-----
Database fully updated status: True
Database Updated Successfully
```

## 6. Managing Pricing Profiles

The Pricing Profiles allows the administrator to set price for each resource and its meters that are specified by the resource providers.

### 6.1 Configuring A Pricing Profile

1. Click on Pricing Profiles.
2. Click Base Profiles.



3. Click on the desired pricing profile name.

The screenshot shows a window titled 'Pricing Profiles' with a close button (X) in the top right corner. Below the title bar is a toolbar with five icons and labels: 'Open' (circular arrow), 'Import' (upward arrow), 'Clone' (two overlapping squares), 'Update Meters' (upward arrow with a meter), and 'Delete' (trash can). Below the toolbar is a table with three columns: 'PROFILE ID', 'PROFILE NAME', and 'CURRENCY'. The table contains two rows. The first row has '1' in the first column, 'Azure-Stack-Base' in the second, and 'USD' in the third. The second row has '2' in the first column, 'Bronze' in the second, and 'USD' in the third. To the right of the 'CURRENCY' column, there is a link labeled 'Export Profile' for each row. The second row is highlighted with a dashed blue border.

PROFILE ID	PROFILE NAME	CURRENCY
1	Azure-Stack-Base	USD
2	Bronze	USD

4. Specify a name for the pricing profile.
5. (Optional) Select Yes/No for the 'SET MONTHLY FEE?' field.
6. (Optional) Specify the 'MONTHLY FEE' amount.
7. (Optional) Specify the 'ONE-TIME FEE' amount.
8. (Optional) If the tax rate needs to be included for the tenants who subscribe to the offer associated with this pricing profile, Select Yes/No for the 'APPLY STANDARD TAX RATE?' field.

**Note:** The standard tax rate must be specified under *Settings* → *Invoice PDF Settings* → *Standard Tax Rate*. The 'Apply Tax?' must be set to 'Yes' for the tax rate to be applied.

9. (Optional) Specify the 'MARKUP PERCENT'.
10. (Optional) Select Yes/No for the 'APPLY MARKUP ONLY FOR BASE PROFILES?' field.
11. (Optional) Choose a base profile to link the current pricing profile with it.

**Note:** Opting 'Yes' will apply the markup value only if the resources match in the base profile. Opting 'NO' will apply the markup value for resource that matches in the child profile (Even if there is no base for this profile).

□ ×

## Pricing Profile Details

A
Save

PROFILE ID

★ PROFILE NAME

★ SET MONTHLY FEE ?

MONTHLY FEE

ONE-TIME FEE

APPLY STANDARD TAX ?

MARKUP PERCENT

APPLY MARKUP ONLY FOR BASE PROFILES ?

i

BASE PROFILE

★

PROMOTION TYPE

None  Recurring  One-Time

SPECIFY PROMOTION IN PERCENTAGE ?

Yes  No

PROMOTION VALUE

✓

PROMOTION PERIOD

**\***

UPDATE PROMOTION CREDITS FOR EXISTING SUBSCRIPTIONS ?

Yes  No

REGION

CURRENCY TEXT

CURRENCY SYMBOL

Activate Wi  
Go to Settings

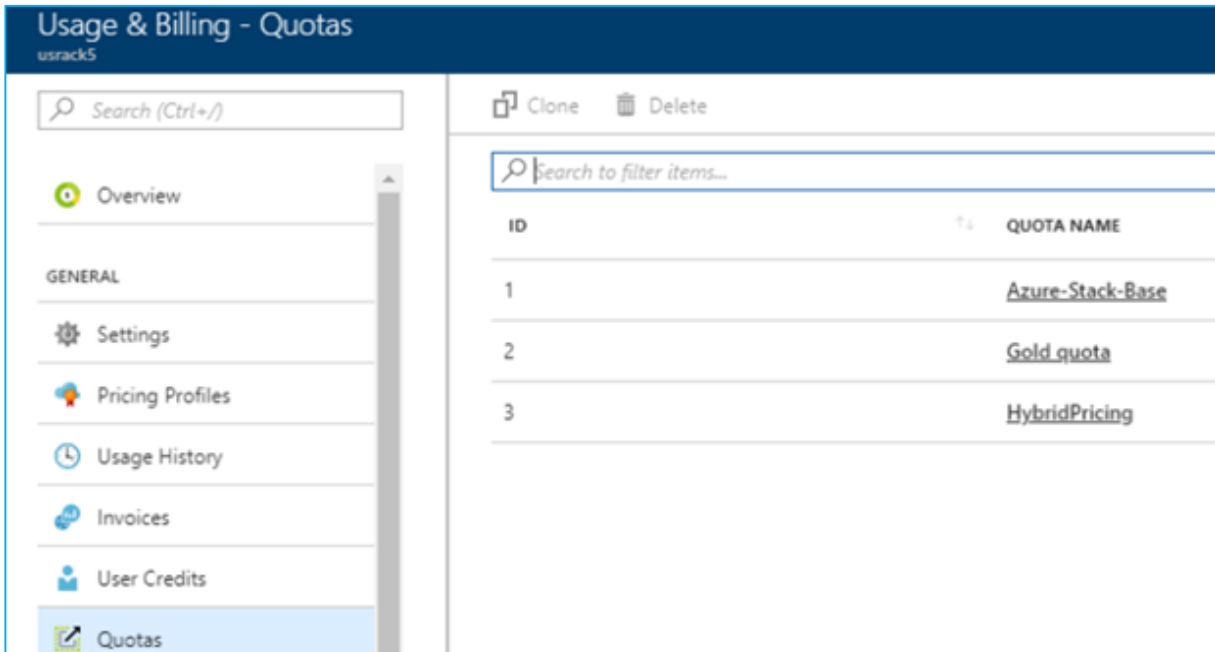
12. (Optional) Choose a '*PROMO TYPE*' and specify the '*PROMO CREDIT AMOUNT*'.
13. (Optional) To update the credits for existing subscriptions, choose 'Yes' in '*UPDATE PROMOTION CREDITS FOR EXISTING SUBSCRIPTIONS?*' field.

**Note:** If the promo credit needs to be calculated in percentage, check the '*SPECIFY PROMOTION IN PERCENTAGE?*' must be set to 'Yes'.

14. Specify the '*REGION*', '*CURRENCY TEXT*' and '*CURRENCY SYMBOL*' and click Save button at the top.

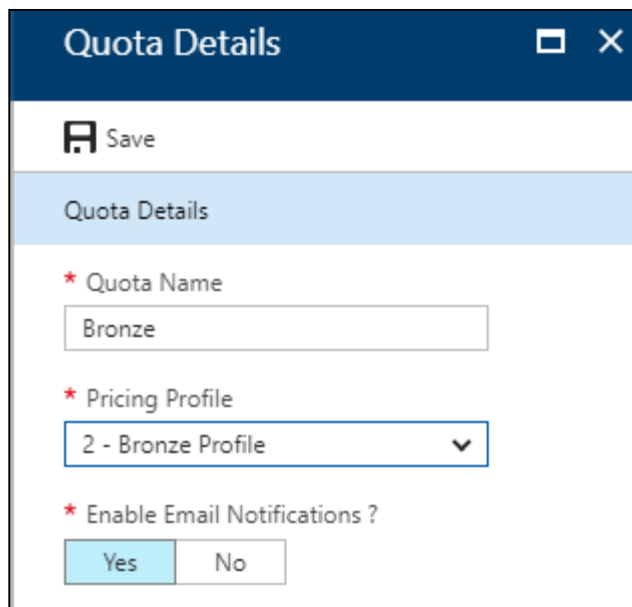
## 7. Quotas

The 'Quotas' extension allows the service admin to create/edit quotas which can be later used to add the Billing service in an Azure Stack plan. By default, a 'Azure-Stack-Base' quota is created. This quota can be cloned and configured.



### 7.1 Setting Pricing Profile and Enabling/Disabling Email Notification

Once a quota is cloned, it can be configured. To configure the quota, click on the quota name.



The screenshot shows a window titled "Quota Details" with a dark blue header. Below the header is a white bar containing a "Save" button with a floppy disk icon. The main content area has a light blue header "Quota Details". There are three required fields, each marked with a red asterisk:

- \* Quota Name:** A text input field containing the value "Bronze".
- \* Pricing Profile:** A dropdown menu showing "2 - Bronze Profile" with a downward arrow.
- \* Enable Email Notifications ?** A group of two radio buttons, "Yes" and "No", both of which are currently unselected.

- The name of the quota can be changed any time.
- The name of the quota can be changed any time.
- The configured pricing profile must be set. (*Refer*

## 8. Adding Billing Service to Azure Stack Plan

Once the pricing profile and quotas are configured, the Billing service can be added to an Azure Stack Plan which later can be added to an Azure Stack offer.

1. Click 'Plans' extension of Azure Stack in the admin portal.
2. Choose an existing plan or create a new plan.

The screenshot shows the 'Plans' page in the Azure Stack admin portal. The page title is 'Plans' for 'Cloud Assert LLC'. It features a navigation bar with '+ Add', 'Columns', and 'Refresh' buttons. Below the navigation bar, there is a message: 'Refresh to see new plans'. The main content area shows 'Subscriptions: Default Provider Subscription' and a search filter 'Filter by name...'. A table lists 9 items, with columns for NAME, TYPE, and RESOURCE GROUP. The 'billing-gold' plan is highlighted.

NAME	TYPE	RESOURCE GROUP
billing-gold	Plan	cloudassert.billing.test
billingqoutatest	Plan	cloudassert.billing.test
billing-test-plan	Plan	cloudassert.billing.test

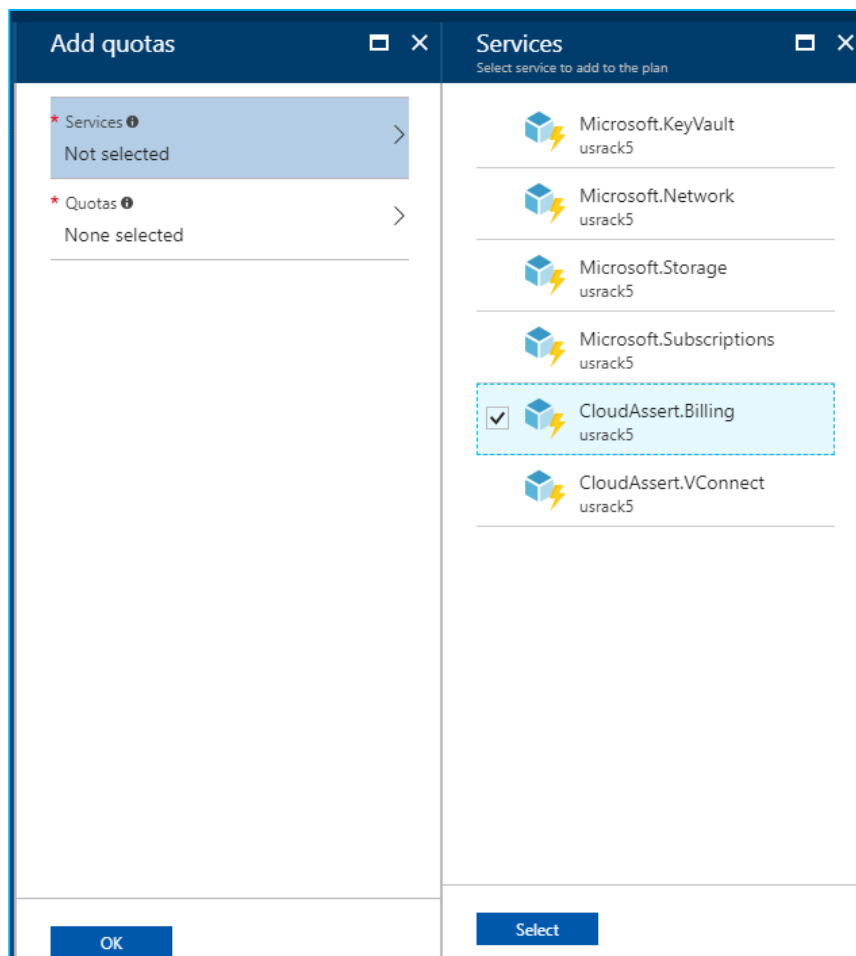
3. Click 'Service and quotas' and click the 'Add' button.

The screenshot shows the 'billing-gold - Services and quotas' page in the Azure Stack admin portal. The page title is 'billing-gold - Services and quotas'. It features a navigation bar with a search box and a '+ Add' button. The main content area shows a table with columns for SERVICE, NAME, and LOCATION. The 'Microsoft.Compute' service with 'Default Quota' is listed.

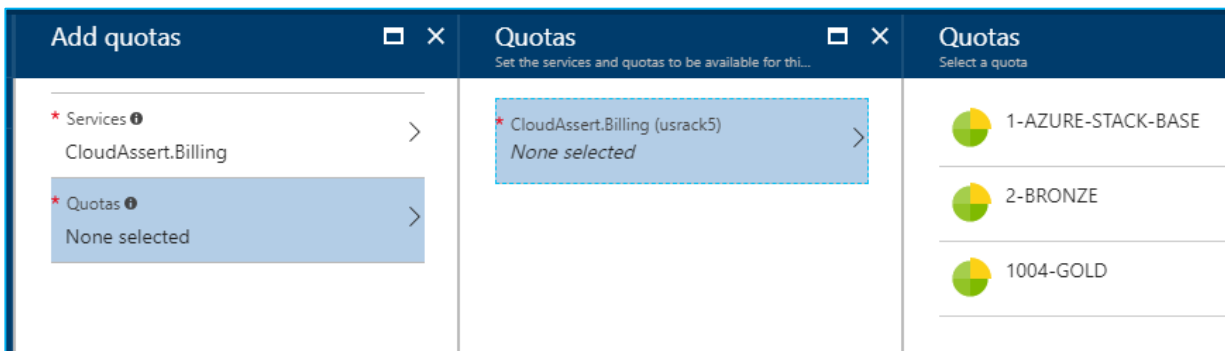
SERVICE	NAME	LOCATION
Microsoft.Compute	Default Quota	usrack5

4. Choose 'CloudAssert.Billing' under Services and Click 'Select' button.





5. Click Quota → 'CloudAssert.Billing'. List of quotas that was configured will be listed. Select a desired Quota and click OK to save the quota.



## 9. Registering Billing Resource Provider in a Subscription

Once the tenant subscribes an offer with Billing Service, the Billing Resource Provider must be registered in that subscription to avail the service and for the cost computation to happen.

- Click '*Subscriptions*' extension in Azure Stack Tenant Portal.
- Choose the Billing Service enabled subscription.

	NAME	SUBSCRIPTION ID	MY ROLE	STATE
	Billing Subscription A	214ebce3-e691-45a7-92ab-00...	Owner	✔ Enabled
	CA - MAS Billing	fa4b419f-7dd9-4cdd-9683-a8...	Owner	✔ Enabled
	CloudAssert RP Subscription	29f9fe2e-829b-4fbc-a921-32e...	Owner	✔ Enabled
	Gold Subscription	373cf11d-34f9-430e-a240-8a4...	Owner	✔ Enabled

- Click '*Resource Providers*' section.

PROVIDER	STATUS	
CloudAssert.Billing	⊗ NotRegistered	<a href="#">Register</a>
Microsoft.Authorization	⊗ NotRegistered	<a href="#">Register</a>
Microsoft.Commerce	⊗ NotRegistered	<a href="#">Register</a>
Microsoft.Gallery	⊗ NotRegistered	<a href="#">Register</a>
Microsoft.Insights	⊗ NotRegistered	<a href="#">Register</a>
Microsoft.Resources	⊗ NotRegistered	<a href="#">Register</a>

- Click 'Register' for the 'CloudAssert.Billing' Provider.