Configuring Rates and Accounts For Billing

This chapter contains the following topics:

- Configuring Rates and Accounts For Billing, page 1

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Introduction

You can design billing rates and also configure accounts and agreements to charge services based on usage. Using Demand Management module in Prime Service Catalog you can manage the consumption and billing/charge back of service items for your customers.

You must be granted the read permissions to Accounts, Agreements, and Billing Rates portlets in Portal Designer module to be able to access these portlets. You can also grant permissions in the Organization Designer module using the portlet, portal page, and portal page group. For more information see, Assigning Permissions, section in Cisco Prime Service Catalog Administration and Operations Guide

The key concepts involved in demand management are:

- Billing Rates - These are the rates or rate plans used for pricing service item consumption, characterized by the type of operation involved. Billing rates are equally applicable to the scenario of internal IT charge back. They are used synonymously as charge back rates in the context of demand management.
- Quotas - Quotas govern the maximum amount of service item resources allowed to be consumed by the customers. They are specified in the form of total item count, or the sum of the values for a specific service item attribute. Quotas are enforced by the corresponding policies defined in service items.
- Accounts - Each account represents a logical or physical customer whom the service provider transacts with. Each account may cover a business unit or multiple business units that are grouped together for the purpose of billing/charge back and quota management.
- Agreements - An agreement covers the types and quotas of service items an account may consume.

Configuring a Billable Rates

Billing data on service item consumption are recorded every time a billable event occurs. The rates for billing the service item consumption normally depend on the operation type and/or the quantity consumed.

Before You Begin:

During the billing rate design, the following factors need to be considered:

- What state changes or actions on a service item constitute a billing event?
- What operations need to be defined to model these billing events?
- How are the billing rates determined? Do they change based on the amount of service item resource consumed or are these flat rates? Are there different pricing scheme for different types of customers?
- How is consumption measured? Which attributes of the service item capture the amount consumed?
- What other information needs to be captured along with the billing events?

Step 1 Create billable events as operations in the Define Service Item page in Service Item Manager. Only operations that have the “Billable” check box enabled are eligible for billing rate configuration.

Step 2 Define multiple billing rate groups to segregate the different pricing schemes for the same billable operation over different fiscal periods and/or different accounts.

Step 3 Create one or more billing rate tables for the billable operations once billing rate groups are in place. Create the corresponding rate tables using the Billing Rates portlet.

Step 4 On the Billing Rate Definition tab, specify the service item attributes to be used to look up the billing rates, as well as the ones to be captured along with the rates as memo information.

Step 5 On the Billing Rate Table tab, enter the rates and/or rate codes that correspond to the unique combinations of lookup attribute values.

Note A billing rate group is associated with one or multiple accounts when the accounts are set up. The billing rate group associations may need to be updated at the turn of fiscal periods if there are billing rate changes between the periods.

Step 6 When a billable operation of a service item is invoked, the billing rate for the service item is derived based on the values of the matching billing attributes as defined in the billing rate table.

Step 7 The billing information will be collated and recorded in a billing history table. The billing history can be accessed in the Billing History Portlet. It can also be retrieved through REST web services for passing to a third-party billing engine for further processing.

Creating a Billing Group For Similar Rates

The operations performed for each service item may vary and therefore the rate at which each operation can be billed also varies. Create a billing rate group to associate a rate table logically and also group similar rate tables. You can create multiple rate groups.

Procedure

Step 1 Choose **Demand Management** > **Billing Rates**.

Step 2 Click the + **Add** in the list panel to the left and select **Rate Group**.

Step 3 Enter a **Name** and a **Description** of the rate group in the Add New Billing Rate Group window.

Step 4 Click **Add**.

Step 5 Click **Save** in the Billing Rate Group Definition page to save the rate group that you created.
The rate group appears in the list panel to the left.

Configuring Rates for a Service Item

You can create a billing rate table to define billing attributes and attributes that could be used for reference. You can also use the billing rate table to configure rates for a service item.

Note Ensure that you have additional permissions to manage billing rates in the Organization Designer module.

The content panel for billing rate table contains two tabs.

Billing Rate Definition- You can define the billing attributes and operations of a service item task that can be used for billing.

Billing Rate Table-You can configure the rates for the service item.

You can create multiple rate tables for a service item operation. When the service item operation is initiated, the system refers to the billing rate table and inserts an entry into the billing history table with the rate code, rate and the memo attributes.

To create a billing rate table:

Step 1 Choose **Demand Management** > **Billing Rates**.

Step 2 Click the + **Add** in the list panel to the left and select Rate Table.

Step 3 Enter the required information in the Add New Billing Rate Table window. Ensure that:

- **Name-** The name has alphanumeric characters and begins with an alphabetic character.
- **Service Item Type-**The service item type that you want to associate with the rate table. The attributes that were already defined for the service item, are used to configure rates in the Billing Rate Table tab.
- **Rate Group-** Choose the rate group from the drop down list. The rate group will be associated with the rate table.
- **Unit Rate-** Select the check box if you want the price of the service to be calculated using unit rate. The price of a service will be calculated by multiplying the unit rate with the corresponding attribute value in the service form. The calculated rate will be saved in the billing history table if the unit rate flag is set. Unit rates are also considered during export and import operations in catalog deployer. For more information about exporting/importing billing rates and options considered while export/import, see 'Managing Content Deployment' chapter in Cisco Prime Service Catalog Administration and Operations Guide

For example, if you are ordering a hard disk of unit rate 10 dollars and the quantity ordered is 2, the billable amount is 10*2 that is 20 dollars. The quantity entered in service form, ie 20 dollars is saved in the billing rate table and billing history.

The per- unit rate billing does not support more complex billing rate calculations such as step rates and volume discounts. Therefore when you select Unit Rate ensure that:

- ◦ Only one billing rate attribute is billable.
  - ◦ Only one data record exist in the Rate Table data.
  - ◦ The single billable attribute must be of 'Number' data type only (Integer/Long/Double/Money).
  - ◦ If there are multiple records in data tab, do not select Unit Rate flag.

Step 4 Click **Add**. The content panel for billing rates contains 2 tabs:

- **Billing Rate Definition -** displays the attributes that have already been defined in Step 3. This tab also contains the following tables:

  1. In Billing Rate Attributes table, select the attributes that you want to consider for billing in the **Billing** check box and the other attributes that you want to be saved as a reference in the Lookup check box.

The information in the Billing Rate Attributes table is saved in the BiBillingHistory table. The BiBillingHistory table can be used by the billing engine to compute a rate for the service item task.

1. In Billing Rate Operations table, check the **Apply?** check box for the service item operations that you want the billing rate table to be associated with.

Billing Rate Definition tab displays the billable operations that you defined when you created a service item operation. See Configuring Service Item Operations, page 3-10.

- **Billing Rate Table -** Click **Add**, to configure the rates for the service item operation. An empty line opens at the bottom of the grid, where you can enter the appropriate rate information for the attributes. You can configure multiple billing rate codes.

For example, a service item like sandisk could be applicable for multiple companies such as IBM and Cisco. You can create rate code based on the company name that is using the sandisk.

Rates could also vary depending on the unit of measure. You can define multiple rate codes depending on billing rates for the usage of sandisk. You could create a rate code for the usage like the number of months, days, or hours the sandisk is used.

The attributes displayed in the Billing Rate Table is a one-one mapping of the billing attributes defined for the service item in the Billing Rate Definition tab

Step 5 Click **Save**.

Configuring Accounts for Billing Transactions

An account covers one or more Organization Units (OU)s that can consume services and get billed for what is consumed. Therefore when you order a service, the application verifies if you belong to the OU that is mapped to the account. You can assign and track quotas using accounts.

There are two types of accounts:

- Tenant Account - A tenant account has a one-to-one relationship with the OU.

Create a tenant account when the resource consumption is tracked based on a person's Home OU membership. A tenant account may cover a single OU or a hierarchical organization, i.e., an OU with one or multiple levels of sub-units. A tenant account should be associated with the top OU in the hierarchy. When a member of the organization hierarchy orders a service that has billing or quota impact, the person's tenant account membership is determined in the system automatically by looking up the account associated with his/her Home OU. If there is no associated tenant account, the system repeats the search with the parent OU, and traverses up the organization hierarchy until one is identified.

- Project Account - This is a grouping of OUs. Project account can be associated with multiple OUs.

You create a project account when quota needs to be tracked collectively for a group of OUs that may or may not have a relationship with each other. When a member of the project account orders a service that has billing or quota impact to the account, the project account information should be included in the service item operation to override the tenant account lookup. For example, in a service item task, the associated service item-based dictionary should have the AccountID field included and set to the corresponding value for the project account that is being tracked for consumption.

In most cases, tenant accounts are used to model business units and project accounts are used to model groups established for projects.

Defining Attributes for an Account

The attributes are common to all accounts. If you are a service designer you can use attributes to define any additional attributes that should be captured for every account (e.g. Taxpayer ID). You can define custom attributes as this could vary based on the your domain. The attribute values can be referenced/exposed in policy email notifications. They can also be passed as parameters to policy triggered service requests.

Step 1 Choose **Demand Management** > **Account** > **Define Account**.

Step 2 In Define Account tab, click **Add**. An empty line opens at the bottom of the grid, where you can type your entries.

Step 3 Click **Save**.

To delete an attribute, choose **Demand Management > Account > Define Account**, select the attribute and click **Remove Selected**.

Creating an Account

Step 1 Choose **Demand Management** > **Account** > **Manage Account**.

Step 2 In Manage Account tab, click **Add**

Step 3 Enter the following details:

- **Name**
- **Account Type**: Click on the radio button depending on the account type you want to create.
- **Description**

Step 4 Click **Add**.
The details you entered are displayed in the Account Information panel.

Step 5 In the Account Information panel, do the following:

Table 1: Account Information

Field	Action	Description
Billing Rate Group	Click the lookup icon. Select a Rate Group and click **Add**.	The rate group window displays the rate group that you had already defined. See Creating a Billing Group For Similar Rates, on page 2.
Organizational Unit (OU)	Click the lookup icon. Select an OU and click **Add**.	The organizational window displays the organizations that you had created in the Organization.
Functional Position	Select a functional position and click **Add**.	The functional position window displays the functional position that you created in **Organization Designer > Functional Positions**.
Custom Attributes		The custom attributes table displays the service item attributes you defined in Configuring Accounts for Billing Transactions, on page 5.

Step 6 Click **Save**.

An account may be deleted only if it has no agreement and service item subscription associated with it. To delete an account, choose **Demand Management > Manage Account**, select an account and click **Delete**.

Configuring Billing Rates Based on Usage (Agreements)

Using agreements accounts can be billed based on the services used. You can configure agreements to specify the maximum quota of service item. Therefore only attributes that are managed by quota can be used to create an agreement.

You can also create multiple agreements and sub-agreements and associate it with OUs or accounts. For example you can create a sub-agreement for an agreement such that a customer (OU or tenant account) can distribute his quota for a service item, to his sub OUs.

Agreements are created to enable tenant or project accounts to consume service items that are quota-managed. Service items that have any attributes marked as “Managed by Quota” are resources that need to be regulated for consumption to prevent them from over-subscription by individual accounts. As such, an agreement is a set of service item quotas defined for the associated account, specified in the form of “Count” (maximum number of service item instances) or “Sum” of certain attributes (aggregated total of the attribute values for all instances). The used amounts are also tracked in the agreement.

For example, if there is a need to restrict the maximum number of virtual machines provisioned for each account and the total vCPUs consumed, the service designer would first mark the vCPU attribute in the service item definition as managed by quota, and then create an agreement template which includes a count quota for the number of virtual machines, as well as the sum of vCPU allowed. When a new account is set up, the finance manager creates an agreement from the template to specify the quotas allowed for the account, and define a quota policy to enforce the quota check at the appropriate thresholds (e.g., notify the account manager at 80% consumption, and stop ordering at 100% consumption).

Once the account, agreement and quota policies are in place, when a service item operation is processed to create a new virtual machine for an account, the system performs the following steps:

Step 1 Look up the agreement for the account involved in the operation.

Step 2 Locate the total and used quotas for virtual machine within the agreement.

Step 3 Return an error if no agreement is found, or there is no corresponding quota for virtual machines.

Step 4 Look for any quota policy in place for the service item and account involved. Based on the quota policy condition and actions, determine if the operation should be prohibited.

Step 5 If the quota policy allows the operation to proceed, increment the used quotas of virtual machine count by 1 and the sum of vCPU consumed by this virtual machine in the agreement.

Adding Agreement Templates

Agreement templates are created to enable you to create an agreement effectively. You can define service offering and attributes in the agreement template and then associate the template while you create an agreement.

However you can also add additional attributes in the agreement which might not have been defined in the agreement template. The agreement will then be disassociated from the agreement template.

Step 1 Choose **Demand Management** > **Agreement** > **Agreement Templates**.

Step 2 Click **Add** in the Agreement templates list panel.

Step 3 In the Add New Agreement Template window, enter the **Name** and **Description**, and click **Add**.
The details you entered are displayed in Agreement Template information panel.

Step 4 To define the attributes for the agreement template, click **Add** in the attributes table of the Agreement Template information panel.

Step 5 Enter the following information in the **Add New Agreement Attribute** window:

- Service Item Type
- Aggregate Method
- Service Item Attribute - The drop-down list of the service Item Attribute field is enabled only if you have defined managed by Quota attributes when you designed the service item. See Managing Service Item Attributes.
- Quota - Defines the limitation of using the service item. If you are an administrator, you can increase or decrease the quota assignment. This is the only attribute you can change in the template.

Step 6 Click **OK**, and then click **Save**.

Note Quota is the only attribute you can update once an agreement template is created. To change any other attribute you must select the row that contains the attribute that requires to be updated, click Remove Selected, save the agreement template, and add the attributes again with new values.

Adding an Agreement

To add an agreement:

Step 1 Choose **Demand Management** > **Agreement** > **Agreements**.

Step 2 Click **Add**, in the Agreements list panel.

Step 3 Enter the following information in the New Agreement window.

- Name
- Account Type - Choose the account type you want to associate the account with.
- Account - The accounts are listed in the drop-down list based on the account type you have chosen. The organizational unit that is associated with the account is displayed in the Associate Organizational Unit tab.
- Agreement Template - Agreement templates are listed only if you have created agreement templates as described in Adding Agreement Templates, on page 7.

- Description

Step 4 Click **Add**.

Step 5 The content panel of the Agreements tab displays the following tabs:

- Agreement Information - The information provided when you added an agreement is displayed in this panel. It also imports information from the Agreement Template that you associated the Agreement with. Click **Add** to add more attributes in the attributes table.
- Associate Organizational Unit - This tab displays the organizational unit that is associated account. This is blank for a master agreement.

For a master agreement (the top agreement for a tenant account), the tab shows the OU already associated with the tenant account. For sub-agreements (agreements that are created from a master agreement), the tab is editable and one or more OUs can be added here. The OUs are however restricted to only sub-OUs of the tenant account OU. Also each sub-OU can be associated with only one sub-agreement.

Step 6 Click **Save**.

Creating Sub-Agreements

You can create sub-agreements of a parent agreement such that the quota limited for a master account can be shared appropriately with the sub accounts or fiscal periods. You can also ensure that you apply the sub-agreement to a particular OU of all the OUs that the account is associated with.

To create a sub-agreement:

Step 1 Choose **Demand Management** > **Agreement** > **Agreements**.

Step 2 Click **Add**, in the Agreements list panel.

Step 3 Choose an account that is already created from the drop-down list in the New Agreement window.
The **Parent Agreement** field is displayed that lists the agreements associated with the account that you selected.

Step 4 Choose a Parent Agreement from the drop-down list.

Step 5 Click **Add**.
The **Add** and **Remove Selected** buttons are disabled indicating that you can only update the quota limit for a sub-agreement.

Step 6 Update the quota as required and click **Save**.

Step 7 Click **Add** in the Associate Organizational Unit tab, to select the Organizational Units that can be associated with the sub-agreement. Click **Save**.

Pricing a Service

Use the Pricing subtab to configure summary pricing and detailed cost information for the service. Service costs and prices can be used as the basis of chargebacks for delivering the service.

If you need to price service item based on consumption or by the type of operation involved, you can configure pricing in the Demand Management module. For more information, see Configuring a Billable Rates, on page 2 section.

To define the price for a service

Step 1 Choose **Service Designer** > **Services** > **Offer** > **Pricing**.

Step 2 Enter the Cost Details in the **Cost Details** table. See Pricing Options and Dynamic Pricing.

Step 3 Enter the Pricing in the **Pricing Summary** table. See Pricing Options and Dynamic Pricing.

Step 4 Click Save **Pricing Summary**.

Pricing Options and Dynamic Pricing

The options specified on the Pricing Summary determine how price information is displayed in My Services > Service Overview. Only the “Pricing Required” option from Service Designer > Offer > Estimated/Fixed influences the workflow of the service by inserting a pricing moment after the request has been submitted. Because this behavior is inflexible, it may not be suitable for most scenarios where a price must be determined dynamically.

To provide more flexibility, service designers can write active form rules that dynamically set the price of the service. Like any active form rules, rules that set the price for a particular service request can be executed conditionally at any time during the authorization, review, and delivery cycle. The updated “transactional price” of the service request is shown in the Service Catalog > My Stuff > Open Orders or Completed Orders.

Dynamic pricing rules can be used in any services, not just those that are “Priced Dynamically”. The only benefit of using this option vs. “Fixed” is that it better sets the customer’s expectations.

For more information on using rules to dynamically price a service, please see Configuring Dynamic Form Behaviors Using Form Rules.

Table 2: Cost Details Information

Field	Definition
Accounting Code	Category of expense, such as Capital expense or labor expense. Click **Add** to add a code. Click **Update** to update information.
Description	Description of the chosen code.
Quantity	Number of the chosen expense to be included.

Field	Definition
Rate	The cost per service. The quantity and the rate are calculated and reflected in the total if you choose the Include option. You can also copy the total into the Pricing Summary if you choose **Copy**.
Cost Driver	Units appropriate for the chosen service such as BTUs or CPUs. The list of available Cost Drivers is configured in the Administration module in Lists.
Time Period	The time period in which the service expense is applied, such as Daily or Once.
Subtotal	Price based on the quantity and the rate for the given expense.
Include	Choose to include the expense in the pricing total.
Copy (button)	Click to include the Total from the Cost Details into the Pricing Summary information.

Table 3: Pricing Summary Information

Field	Definition
Price	The summary price for this service. If you want the summary price to be the same as the total of the Cost Details, click **Copy**.

Field	Definition
Display Options	Customers can click on the service name to get more details about the service before ordering it. If an option to display pricing is chosen, the pricing summary and cost details appear on the Overview page, as shown in the sample below. • **Display both cost and price:** The individual expense lines you specify in the Cost Details area and the Pricing Summary appear to the customer. • **Display only price**: Only the Pricing Summary appears to the customer. • **Do not display cost and price**: Both the Cost Details and Pricing Summary do not appear to the customer. **Note** If you have chosen the Service Catalog module in the main menu, you will see the price for a service. The costs and price description are not applicable to the Service Catalog module.

Field	Definition
Estimated/Fixed	Type of pricing for the service: • **Fixed price**: This option indicates that the price is fixed. • **Pricing Required**: This is both a descriptive field and one that affects system behavior. It activates the Pricing moment for the service and My Services displays the price entered in the Price field as "subject to pricing." The Pricing moment occurs before the Authorization moment, if applicable, and the Delivery moment. If a "Pricing Required" task is created, it is sent to the Default Service Delivery Queue. A Service Manager user with Access Queue permission for that queue must enter a final price during the Pricing moment and click **Set Price** to advance the service request. The Pricing moment is optional. • **Time and Materials**: This option indicates that the price is based on time and materials. • **Leased**: This option indicates that the price is based on lease. • **Estimated**: This option indicates that the price is estimated. • **Priced Dynamically**: This option indicates that the service price is determined dynamically. The type of pricing appears to the customer in My Services unless you choose the "Do not display price" option. The display of cost or price to approvers and task performers is not affected by this setting.
Description	A description of the chosen pricing.

Computing the Price for a Service

While designing services, you can enable the end user to calculate the price for a service before ordering. This will enable the end user to make conscious decisions while ordering a service.

An estimated price defines the billable amount for the dictionary. However, when you enable compute price, it calculates the sum of all the dictionaries for a service form and/ or calculates the price for each dictionary.

You must ensure that a rate table is associated with the billable attributes of a service.

Step 1 Create a Service Item, and do the following:

a) Define attributes for the server, like, Name, Type, or Storage

b) Define billable and non billable operations. Billable operations could be Start Server or Restart Server for a server. Non billable operations could be Stop Server.
For more information, see Defining Service Items for a Service.

Step 2 Create a service item-based dictionary for the service item.

a) Enable estimated price as a dictionary attribute. For more information, see Service Item-Based Dictionary.
Note The other attributes defined when you created the service item are already enabled.

Step 3 Create a form in the Active Form Components, and add the service item-based dictionary to the form. For more information, see Service Item-Based Dictionary.

Step 4 Create a service (You can define the service as Order Server), and do the following:

a) Add the form that you created, to the service. For more information, see Configuring an Active Form.

b) Create a task. In the **Service Designer** > **Task**tab, define service item workflows and choose the billable operations that you created earlier. The workflow type could be **Service Item Task** and task name could be **Start Server**. For more information, see Defining Service Item Task in a Delivery Plan.

c) **Enable Compute Price** option in **Service Designer > General**. For more information, see Creating a Service.

Step 5 Create a billing rate table that is applicable to the service item. For more information, see Configuring a Billable Rates, on page 2.

Step 6 Create an account and configure it such that it is mapped with the billing rate group applicable to the service item. Also add the organizational unit. For more information, see Configuring Accounts for Billing Transactions, on page 5.
Order the service from **My Services**. Click on **Compute Price** to evaluate the estimated price of the service that you ordered.