

Example of a Bucket VTA

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Overview of Bucket VTA Example

In this example each subscriber has a bucket account; that is, an account that is periodically measured and refilled depending on the usage of the account.

In this example, there are two bucket sizes:


- Behaving bucket size—2 GB
- Misbehaving bucket size—1 GB

The rate at which the buckets are refilled depends on usage. If the subscriber is staying within the behaving rate, the bucket account is refilled at the rate of 2 GB per week. If the subscriber is exceeding the behaving rate, the bucket account is refilled at the rate of 1 GB per week:

- Behaving refill rate—3550 bps, or 2 GBs per 7 days
- Misbehaving refill rate —1775 bps, or 1 GB per 7 days

Events for Bucket VTA

The bucket VTA example has the following events:




VTA Configuration Manager
Edit Configuration

- Home
- Dir Connection
- Configuration
 - Create
 - Edit
 - Load
 - Commit
 - Import
 - Export


Current Configuration

[Event Handlers](#)
[Actions](#)
[Processors](#)
[Logging](#)
[Subscriber ID and Lookup](#)

Quota VTA Events and Handlers


[Available Events](#) 

Name	Value	
Event	SERVICEINTERIM(Behaving)	Delete
	SERVICEINTERIM(Misbehaving)	Delete
	SERVICESTOP(Behaving)	Delete
	SERVICESTOP(Misbehaving)	Delete
	USERSTART	Delete
<input type="button" value="Add Event"/>		
<input type="button" value="Save"/>		



Event Handlers for Bucket VTA

The bucket VTA includes the following event handlers.



VTA Configuration Manager
Edit Configuration

- Home
- Dir Connection
- Configuration
 - Create
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 - Load
 - Commit
 - Import
 - Export

Current Configuration

[Event Handlers](#)
[Actions](#)
[Processors](#)
[Logging](#)
[Subscriber ID and Lookup](#)

Quota VTA Events and Handlers


[Current Event Handlers](#)

Event Handler

GetBucket	Delete
RefillBucketWithBehavingRate	Delete
UpdateBehavingUsage	Delete
ToMisbehaving	Delete

New Event Handler

Create



GetBucket Event Handler

The GetBucket event handler retrieves the balance of the bucket account when the subscriber logs in.

GetBucket	
Name	Value
Priority ?	1
Events	<div> SERVICEINTERIM(Behaving) SERVICEINTERIM(Misbehaving) SERVICESTOP(Behaving) SERVICESTOP(Misbehaving) USERSTART </div>
Condition	<input type="text"/> <input type="button" value="Enable"/>
Actions	<div> CalcUsage GetBucketBalance RefillBucketWithBehavingRate StartBehavingService StartMisbehavingService </div>

RefillBucketWithBehavingRate Event Handler

The RefillBucketWithBehavingRate event handler refills the bucket with the behaving rate and starts the behaving service if the bucket account has a positive balance.

RefillBucketWithBehavingRate	
Name	Value
Priority ?	5
Events	<div> SERVICEINTERIM(Behaving) SERVICEINTERIM(Misbehaving) SERVICESTOP(Behaving) SERVICESTOP(Misbehaving) USERSTART </div>
Condition	<input type="text" value="return <balance_Bucket>>0"/> <input type="button" value="Disable"/>
Actions	<div> CalcUsage GetBucketBalance RefillBucketWithBehavingRate StartBehavingService StartMisbehavingService </div>

UpdateBehavingUsage Event Handler

The UpdateBehavingUsage event handler updates the bucket account with the usage from the behaving service.

UpdateBehavingUsage	
Name	Value
Priority ?	5
Events	<div> SERVICEINTERIM(Behaving) SERVICEINTERIM(Misbehaving) SERVICESTOP(Behaving) SERVICESTOP(Misbehaving) USERSTART </div>
Condition	<input type="text"/> <input type="button" value="Enable"/>
Actions	<div> CalcUsage GetBucketBalance RefillBucketWithBehavingRate StartBehavingService UpdateBucketForBehaving </div>

ToMisbehaving Event Handler

The ToMisbehaving event handler changes the subscriber to misbehaving mode when the bucket has zero or negative balance.

ToMisbehaving	
Name	Value
Priority ?	10
Events	<div> SERVICEINTERIM(Behaving) SERVICEINTERIM(Misbehaving) SERVICESTOP(Behaving) SERVICESTOP(Misbehaving) USERSTART </div>
Condition	<input type="text" value="return <balance_Bucket><=0;"/> <input type="button" value="Disable"/>
Actions	<div> RefillBucketWithBehavingRate StartBehavingService StartMisbehavingService StopBehavingService UpdateBucketForBehaving </div>

Database Engine Processor for Bucket VTA

The bucket VTA contains a database engine processor that is configured as follows.

Account Update Scripts

The database engine processor contains two account update scripts:

- DebitBehavingUsage—Debits the usage of the behaving service from the bucket account and resets the balance of the bucket account based on the new balance.
- RefillBucketWithBehavingRate—Refills the bucket account with the behaving rate.

Current Configuration

Event HandlersActionsProcessors

Quota VTA Processors

Database Engine Processor

Disable

Name	Value		
Account Update Script ⓘ	Account Update Script Name	Account Update Script Content	
	DebitBehavingUsage	<pre>var newBalance = Math.min(<balance_Bucket>-<currentUsage>, 2147483648); <balance_Bucket> = newBalance<0?-1073741824:newBalance; <lastUpdateTime_Bucket>=<currentTime>;</pre>	Delete
	RefillBucketWithBehavin	<pre>var bucketFill = (<currentTime>-<lastUpdateTime_Bucket>)*3550/1000; <balance_Bucket>=Math.min(<balance_Bucket>+bucketFill, 2147483648); <lastUpdateTime_Bucket>=<currentTime>;</pre>	Delete
Add Account Update Script			
Save			

Subscriber Account

The subscriber account sets the initial balance of the account to 2147483648 and sets the initial status of the account to active.

Current Configuration

Event Handlers Actions **Processors**

Quota VTA Processors

[Database Engine Processor](#)

Disable

Database Engine Account

Bucket	
Name	Value
Initial Balance	<input type="text" value="2147483648"/>
Initial Status	<input type="text" value="Active"/>
<input type="button" value="Save"/>	
New Database Engine Account	<input type="text"/>
<input type="button" value="Create"/>	

Service Accounts

The service account has the following usage metric:

Current Configuration

Event Handlers Actions **Processors**

Quota VTA Processors

[Database Engine Processor](#)

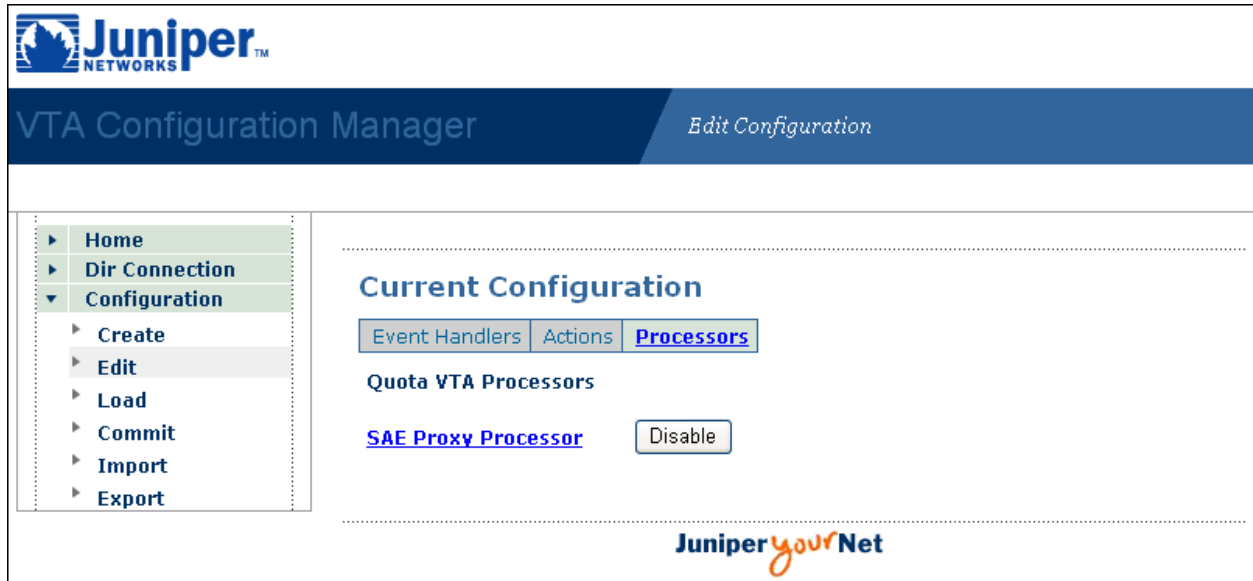
Disable

Database Engine Service

Behaving	
Name	Value
Usage Metric	<pre>var bucketFill = (<currentTime>-<lastUpdateTime_Bucket>)*3550 var bucketDrain = <upStreamBytes>+<downStreamBytes>; return bucketDrain-bucketFill;</pre>
Interim Interval	<input type="text"/> <input type="button" value="Enable"/>
<input type="button" value="Save"/>	
New Database Engine Service	<input type="text"/>
<input type="button" value="Create"/>	

SAE Proxy Processor for Bucket VTA

The SAE proxy processor is set to enabled.



The screenshot displays the Juniper VTA Configuration Manager web interface. At the top left is the Juniper Networks logo. Below it, the title "VTA Configuration Manager" is shown in a dark blue header, with a link "Edit Configuration" to its right. A left-hand navigation menu contains links for Home, Dir Connection, Configuration (expanded), Create, Edit (highlighted), Load, Commit, Import, and Export. The main content area, titled "Current Configuration", features three tabs: Event Handlers, Actions, and Processors (selected). Under the "Processors" tab, the section "Quota VTA Processors" contains a link for "SAE Proxy Processor" and a "Disable" button. The Juniper logo with the tagline "yourNet" is positioned at the bottom right of the interface.

Actions for Bucket VTA

The bucket VTA includes the following actions:

The screenshot displays the Juniper VTA Configuration Manager interface. On the left is a navigation menu with options: Home, Dir Connection, Configuration (selected), Create, Edit, Load, Commit, Import, and Export. The main content area is titled 'Current Configuration' and includes tabs for Event Handlers, Actions (selected), and Processors. Under the 'Actions' tab, there is a section for 'Quota VTA Actions' containing a table of actions with 'Delete' buttons. At the bottom of this section is a 'New Quota VTA Actions' form with a 'Create' button. The Juniper logo and 'yourNet' tagline are at the bottom right.

Current Configuration	
Event Handlers Actions Processors	
Quota VTA Actions	
GetBucketBalance	Delete
CalcUsage	Delete
RefillBucketWithBehavingRate	Delete
UpdateBucketForBehaving	Delete
StartBehavingService	Delete
StartMisbehavingService	Delete
StopBehavingService	Delete
New Quota VTA Actions <input type="text"/>	
Create	

GetBucketBalance Action

The GetBucketBalance action retrieves account balances.

GetBucketBalance					
Name	Value				
Processor	DBEngine ▼				
Function	GetAccounts <div> <div><</div> <div></div> <div>></div> </div>				
Parameter ⓘ	<table border="1"> <thead> <tr> <th>Parameter Name</th> <th>Parameter Content</th> </tr> </thead> <tbody> <tr> <td colspan="2">Add Parameter</td> </tr> </tbody> </table>	Parameter Name	Parameter Content	Add Parameter	
Parameter Name	Parameter Content				
Add Parameter					
Abort On Error	<div> <div></div> <div>▼</div> </div> <div>Enable</div>				

CalcUsage Action

The CalcUsage action calculates usage in the service-tracking event by using the usage metric configured for the service.

CalcUsage					
Name	Value				
Processor	DBEngine ▼				
Function	CalculateUsage <div> <div><</div> <div></div> <div>></div> </div>				
Parameter ⓘ	<table border="1"> <thead> <tr> <th>Parameter Name</th> <th>Parameter Content</th> </tr> </thead> <tbody> <tr> <td colspan="2">Add Parameter</td> </tr> </tbody> </table>	Parameter Name	Parameter Content	Add Parameter	
Parameter Name	Parameter Content				
Add Parameter					
Abort On Error	<div> <div></div> <div>▼</div> </div> <div>Enable</div>				

UpdateBucketForBehaving Action

The UpdateBucketForBehaving action debits usage of the behaving service from the bucket account.

UpdateBucketForBehaving		
Name	Value	
Processor	DBEngine ▼	
Function	UpdateAccounts	
Parameter ⓘ	Parameter Name	Parameter Content
	ScriptName	DebitBehavingUsage
	<div> Delete Disable </div>	
<div>Add Parameter</div>		
Abort On Error	<div> <input type="text"/> Enable </div>	

RefillBucketWithBehavingRate Action

The RefillBucketWithBehavingRate action refills the bucket with the behaving rate.

RefillBucketWithBehavingRate		
Name	Value	
Processor	DBEngine ▼	
Function	UpdateAccounts	
Parameter ⓘ	Parameter Name	Parameter Content
	ScriptName	RefillBucketWithBehavingRate
	<div> Delete Disable </div>	
<div>Add Parameter</div>		
Abort On Error	<div> <input type="text"/> Enable </div>	

StartMisbehavingService Action

The StartMisbehavingService action starts the misbehaving service.

StartMisbehavingService		
Name	Value	
Processor	SAEProxy ▼	
Function	StartService	
Parameter ⓘ	Parameter Name	Parameter Content
	SubscriptionName	Misbehaving
	<div> Delete Disable </div>	
<div>Add Parameter</div>		
Abort On Error	<div> <input type="text"/> Enable </div>	

StopBehavingService Action

The StopBehavingService action stops the behaving service.

StopBehavingService											
Name	Value										
Processor	SAEProxy ▼										
Function	StopService										
Parameter ⓘ	<table border="1"> <thead> <tr> <th>Parameter Name</th> <th>Parameter Content</th> <th></th> </tr> </thead> <tbody> <tr> <td>SubscriptionName</td> <td>Behaving</td> <td> <input type="button" value="Delete"/> <input type="button" value="Disable"/> </td> </tr> <tr> <td colspan="3"> <input type="button" value="Add Parameter"/> </td> </tr> </tbody> </table>	Parameter Name	Parameter Content		SubscriptionName	Behaving	<input type="button" value="Delete"/> <input type="button" value="Disable"/>	<input type="button" value="Add Parameter"/>			
	Parameter Name	Parameter Content									
	SubscriptionName	Behaving	<input type="button" value="Delete"/> <input type="button" value="Disable"/>								
<input type="button" value="Add Parameter"/>											
Abort On Error	<input type="button" value="Enable"/>										

- Related Topics**
- Overview of the SRC-VTA
 - How the SRC-VTA Works
 - SRC-VTA Operation