



Red Hat 3scale API Management 2.1

Access Control

Define your API, create as many plans as you need and set up limits and pricing rules.

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Abstract

This guide documents aspects of access control with Red Hat 3scale API Management 2.1.

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CHAPTER 1. DEFINING YOUR API (METHODS AND METRICS)

In this section you will learn how to define your API on 3scale. In order to do so, you'll need to add your methods and metrics manually on the API > Definition page of the 3scale admin portal, or create them automatically by importing your API specification.

Metrics let you track the usage of your API in 3scale. *Hits* is the built-in metric, it exists in each API service and is used to track the hits made to your API. You can achieve finer granularity for the API usage tracking by defining **Methods** under the *Hits* metric. Reporting traffic to a method will increase counters for the method and for the *Hits* metric automatically. You can define separate methods for each endpoint of you API, or a combination of endpoint and HTTP method. See [Mapping rules](#) section to learn how to map the endpoints of your API to the methods defined here.

For measuring other, not hit-based usage of your API, you can define new **Metrics** and report the usage in different units. A unit can be anything meaningful: megabytes, CPU time, number of elements returned by the API etc.

Methods and metrics are also the scaffolding to package your API: each application plan lets you define different usage limits and pricing rules for each method and metric.

You will be able to see the the usage reported to metrics and methods in the Analytics section.

1.1. MANUALLY ADD METHODS AND METRICS

1. Navigate to the API > Definition section of the **Admin Portal**.

The screenshot shows the 3scale Admin Portal interface. The top navigation bar includes Dashboard, Developers, Applications, Billing, Analytics, API (highlighted), Developer Portal, and Settings. The left sidebar has Overview, ActiveDocs, Definition (highlighted), Integration, Application Plans, Settings, and Alerts. The main content area is titled 'Definition' and contains a form with 'Name: API' and 'System Name: api'. Below this is the 'Methods' section, which includes a table of methods and a 'Create new method' button. The 'Metrics' section is at the bottom, also with a table and a 'Create new metric' button. Blue arrows point to the 'Create new method' and 'Create new metric' buttons.

Method	System Name	Unit	Description	Mapped	
transactions/create_single	transactions/create_single	hit		✓	
transactions/create_multiple	transactions/create_multiple	hit		✓	
transactions/confirm	transactions/confirm	hit		✓	
transactions/destroy	transactions/destroy	hit			Add a mapping rule

Metric	System Name	Unit	Description	Mapped	
Hits	hits	hit	Number of API hits	✓	
Number of transactions	transactions	transaction			Add a mapping rule

2. Click on New method.

3. Specify the parameters:

- Friendly name is a short description of the method, it appears in different sections of the 3scale admin portal. This name must be unique for the service.
- System name is the name of the method which will be used to report the usage through

3scale Service Management API. It also must be unique, and it should only contain alphanumeric characters, underscore `_`, hyphen `-` and forward slash `/` without spaces. Other than that, you are free to decide how the system name will look like, it can be exactly the same as the endpoint (`"/status"`), or for example can include the method and the path (`"GET_/status"`).

- The Description field can be used for a more detailed description of the method, it is optional.

The screenshot shows the 3scale API Management interface. The top navigation bar includes 'Dashboard', 'Developers', 'Applications', 'Billing', 'Analytics', 'API' (highlighted), 'Developer Portal', and 'Settings'. Below the navigation bar, there are tabs for 'Overview' and 'ActiveDocs'. On the left, a sidebar menu contains 'Definition' (highlighted), 'Integration', 'Application Plans', 'Settings', and 'Alerts'. The main content area is titled 'New Method' and contains three input fields: 'Friendly name*' with the value 'Get Hello' and a hint 'e.g. Create new user'; 'System name*' with the value 'gethello' and a hint 'e.g. users/create or create_user. Spaces are not permitted.'; and a 'Description' text area with the value 'This is the Hello method'. A 'Create Method' button is located at the bottom right of the form.

4. Finally, click on Create Method button.

You can later change the definition of the method. Just click on the method name (in the column **Method**), update the fields and click on Update Method.

Be very careful with changing the system name of the methods and metrics or deleting them! It may break your already deployed 3scale integration, if there are mapping rules pointing to the previous system name of the method.

For creating a new metric, click on New metric and provide the required parameters. When specifying the unit, use singular noun (e.g. "hit"), as it will be pluralized automatically in the Analytics charts.

These new methods and metrics will be available in all your current and future plans. You can now edit limits and pricing rules for them on each plan going to **API → Application plans → [Plan you want to edit]**.

1.2. IMPORT YOUR METHODS AND METRICS AUTOMATICALLY

If your API has a lot of endpoints, we offer two additional ways of automatically creating your methods and metrics on 3scale:

- [Importing via Swagger spec](#)
- [Importing via RAML spec](#)

1.3. APPLICATION PLANS

Application Plans define the different sets of access rights you might want to allow for consumers of your API. These can determine anything from rate limits, which methods or resources are accessible and which features are enabled.

1.3.1. How to create an application plan

By default, when your 3scale account is created, you are given two plans: Basic and Unlimited. You can keep and edit these or create your own. You can create as many plans as you need.

To create a new application plan, follow these steps:

1. Go to the API tab
2. Look for the 'Application plans' section
3. Click on 'Create Application Plan'

The screenshot shows the 3scale API management interface. The top navigation bar includes 'Dashboard', 'Developers', 'Applications', 'Billing', 'Analytics', 'API' (highlighted), 'Developer Portal', and 'Settings'. Below the navigation bar, there are tabs for 'Overview' and 'ActiveDocs'. The main content area is titled 'API' with an 'Edit' link. It is divided into two columns. The left column is titled 'Definition, Integration and Settings' and contains a yellow box with integration instructions, a 'Configure the APICast Cloud Gateway' button, and a list of permissions. The right column contains 'Stats' (with a 'Hits' counter showing 0), 'Latest alerts' (showing 'There are no alerts.'), and 'Latest Apps' (showing 'Developer's App from Developer'). At the bottom, a 'Published Application Plans' section is highlighted with a blue box, showing 'Basic - 1 application' and 'Unlimited - 0 applications', with a 'Create Application Plan' button. A blue arrow points from the 'Create Application Plan' button in the 'Published Application Plans' section to the 'Configure the APICast Cloud Gateway' button in the 'Definition, Integration and Settings' section.

In the next screen, pick a name and a system name (system names must be unique) for your new plan. If the 'Applications require approval?' checkbox is selected, no applications will be able to access your API without approval.



Overview [ActiveDocs](#)

Definition
Integration
Settings
Alerts

Create Application Plan

Name*

System name*

Only ASCII letters, numbers, dashes and underscores are allowed.

Applications require approval?

Set whether or not applications can be created on demand or if approval is required from you before they are activated.

[Create Application Plan](#)

Once you've created a plan, you can provision [rate limits](#)

1.3.2. Setting up a default application plan

After you've created all your plans, you can select a default plan for when people sign up to register their applications. To do so, go to **API → Application plans** and select the default plan:

3scale

Dashboard [Developers](#) [Applications](#) [Billing](#) [Analytics](#) [APIs](#) [Developer Portal](#) [Settings](#)

Overview [ActiveDocs](#)

Definition
Integration
Settings
Alerts

[Application Plans](#)

API > Application Plans

Application Plans establish the rules (limits, pricing, features) for using your API; every developer's application accessing your API will be accessing it within the constraints of an Application Plan. From a business perspective, Application Plans allow you to target different audiences by using multiple plans (i.e. 'basic', 'pro', 'premium') with different sets of rules.

Default Plan
Default application plan (if any) is selected automatically upon service subscription.

[Select a default plan](#)

Name	Applications	State			Create Application Plan
Basic	1	published	Hide	Copy	Delete
Unlimited	1	published	Hide	Copy	Delete

If you don't indicate a default application plan, when a new user signs up to get access to your API, they won't be created an application by default (meaning they won't really get access to your API).

1.4. MAPPING RULES

After you define your API creating [methods and metrics](#), you can map your API endpoints or paths to the methods you've just defined in the Definition page.

In order to do so, go to **API > Integration** and open the **Mapping rules** section.

Choose the HTTP method, available on the specific endpoint path, and select the equivalent method to map against. Different operations (GET, PUT, POST, DELETE, etc...) on the same endpoint can be tracked separately.

The workflow to define mapping rules is as follows:

- Add new rules by clicking on **Add Mapping Rule** link. Then select an HTTP method, a pattern, a metric (or method), and its increment. When you're done, click the **Update & Test Staging Configuration** button.

▼ MAPPING RULES ?

Verb	Pattern	+	Metric or Method (Define)
GET	/hello	1	gethello ✎ 🗑️
GET	/goodbye	1	getgoodby ✎ 🗑️

➕ Add Mapping Rule

- Mapping rules will be grayed out on the next reload to prevent accidental modifications.
- To edit an existing mapping rule, you must first enable editing by clicking on the pencil icon on the right. To delete a rule, click on the red trash icon. Edits, modifications, and deletions will be saved when you hit the **Update & Test Staging Configuration** button.

Once the setup is done, you can test your integration with the **Staging APIcast Cloud Gateway** to ensure your setup will work in production.

If all the parameters and mapping rules are set correctly, you should see a green line showing a correct test integration between 3scale and your API Backend.

Staging: 3scale-hosted to configure & test your integration [documentation](#)

API ?

Private Base URL*

Private address of your API that will be called by the API gateway.

API GATEWAY ?

Public Base URL*

Public address of your API gateway in the staging environment. You can use this address to call the API for testing purposes.

▶ MAPPING RULES

▶ AUTHENTICATION SETTINGS

CLIENT ?

API test GET request

Optional GET request to a API gateway endpoint. We will use this call to validate your API gateway setup using credentials of the first live application. You can try it yourself by copying the following command into your shell:

```
curl "https://api-2445581460490.staging.apicast.io:443/?user_key=063a01e356790b831f749b0b8b726e38"
```

Hit the test button to check the connections between client, gateway & API.

Update & Test Staging Configuration

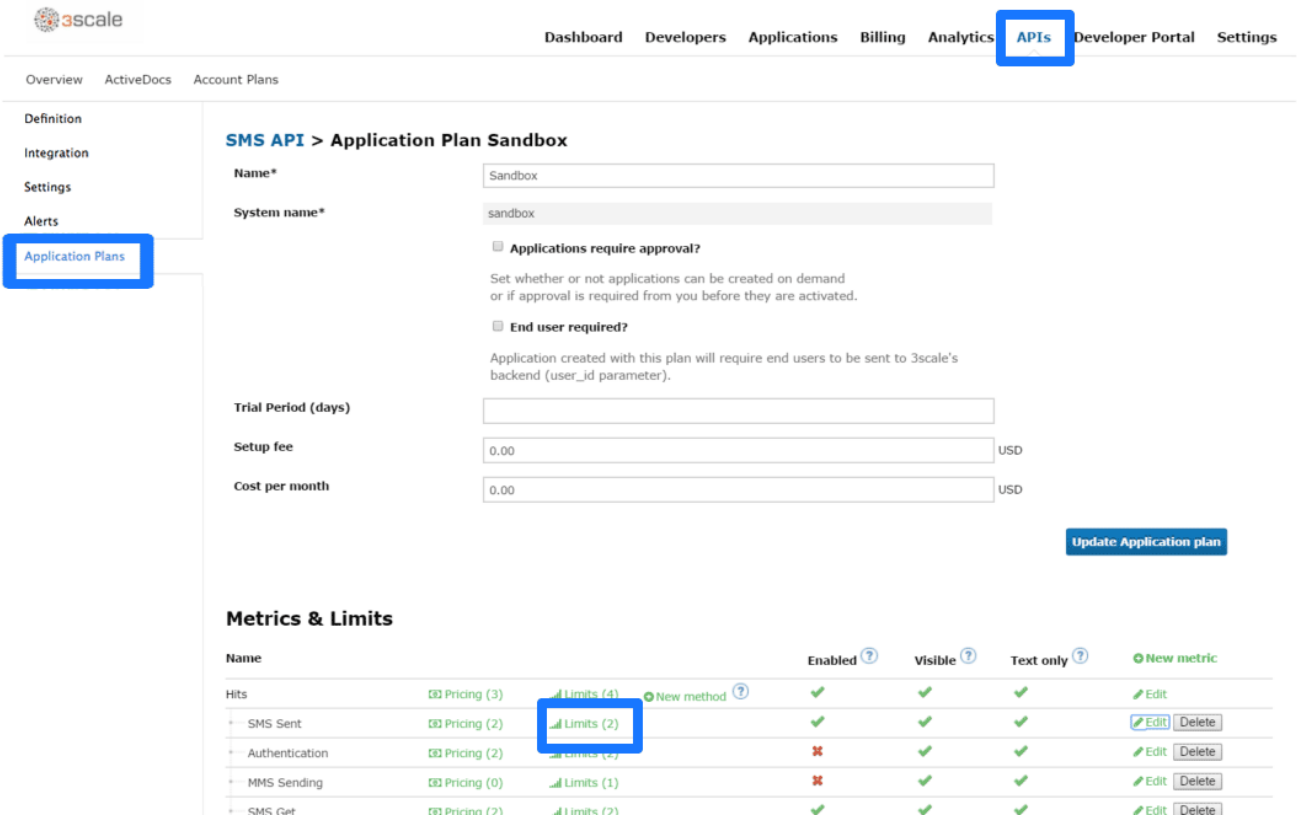
1.5. PROVISIONING RATE LIMITS

Rate limits allow you to throttle access to your API resources. You can configure different limits for separate developer segments through the use of application plans.

Once you have rate limits in place, these limits will control the responses a developer receives when they make authorization request calls to 3scale's backend.

1.5.1. Step 1: Go to the application plan

If you don't have an application plan defined yet, create one first. Otherwise, select the plan you want to set rate limits for and click "edit".



SMS API > Application Plan Sandbox

Name*

System name*

Applications require approval?
Set whether or not applications can be created on demand or if approval is required from you before they are activated.

End user required?
Application created with this plan will require end users to be sent to 3scale's backend (user_id parameter).

Trial Period (days)

Setup fee USD

Cost per month USD

[Update Application plan](#)

Metrics & Limits

Name	Enabled [?]	Visible [?]	Text only [?]	New metric
Hits Pricing (3) Limits (4) New method [?]	✓	✓	✓	Edit
+ SMS Sent Pricing (2) Limits (2)	✓	✓	✓	Edit Delete
+ Authentication Pricing (2) Limits (2)	✗	✓	✓	Edit Delete
+ MMS Sending Pricing (0) Limits (1)	✗	✓	✓	Edit Delete
+ SMS Cost Pricing (2) Limits (2)	✓	✓	✓	Edit Delete

1.5.2. Step 2: Set the rate limits

The screenshot shows the 3scale API configuration interface. The top navigation bar includes 'Dashboard', 'Developers', 'Applications', 'Billing', 'Analytics', 'APIs', 'Developer Portal', and 'Settings'. The 'APIs' menu item is highlighted with a blue box. Below the navigation bar, there are tabs for 'Overview', 'ActiveDocs', and 'Account Plans'. The left sidebar contains a menu with 'Definition', 'Integration', 'Settings', 'Alerts', and 'Application Plans', with 'Application Plans' highlighted by a blue box.

The main content area is titled 'SMS API > Application Plan Sandbox'. It contains several form fields:

- Name***: Sandbox
- System name***: sandbox
- Applications require approval?**: A checkbox that is currently unchecked. Below it is a text description: 'Set whether or not applications can be created on demand or if approval is required from you before they are activated.'
- End user required?**: A checkbox that is currently unchecked. Below it is a text description: 'Application created with this plan will require end users to be sent to 3scale's backend (user_id parameter).'
- Trial Period (days)**: An empty text input field.
- Setup fee**: 0.00 USD
- Cost per month**: 0.00 USD

 An 'Update Application plan' button is located at the bottom right of this section.

Below the form fields is the 'Metrics & Limits' section. It features a table with columns: Name, Enabled, Visible, Text only, and New metric. The table lists three metrics: 'Hits', 'SMS Sent', and 'Authentication'. The 'Authentication' row has a 'Limits (2)' link highlighted with a blue box. Below the table is a 'Usage Limits' section with a 'New usage limit' button highlighted with a blue box. The 'Usage Limits' table has columns for 'Period' and 'Value':

Period	Value
1 year	100000
1 minute	0

1.5.3. Step 3: Update the application plan

When you're finished setting the limits you want, make sure to save your changes by clicking "Update Application plan".

1.5.4. Step 4: Put the new rate limits into action

Now that you have your rate limits defined, the following will happen:

- If you have alerts configured, the new limits will be used to decide when notifications are sent.
- When you make authorization calls to the 3scale backend, the limits will be taken into account. If usage is above the limit, then the response is for an authorization failure. However this is a "soft" rejection, and your app ultimately decides how to handle the rejection

Once your rate limits are operation, you'll see the users that are reaching the limits on your dashboard, making it quick and easy to check for potential plan upgrade candidates

14.3K ACCOUNTS

MESSAGES

API Upgrades

APIs that hit their Usage Limits in the last 30 days

59 Usage Limit alerts

54 Usage Limit alerts

API has 50 Usage Limit alerts

Usage Limit alerts

Usage Limit alerts

14.3K SUBSCRIPTIONS

INTEGRATION ERRORS

Applications

Applications with consistently high traffic in the last 30 days

Default by API Plan

Default by Application Group

Default by API Version

Default by API

Continue to API Management

TODAY

Application 'Default' limit violation - limit usage is above 300%

Application 'Default' limit violation - limit usage is above 200%

API System: New Service subscription

API System: New Application submission

API System: New Service subscription

API System: New Application submission

Application 'Default' limit violation - limit usage is above 300%

API System: New Service subscription

API System: New Application submission

Application 'Default' limit violation - limit usage is above 200%

Application 'Default' limit violation - limit usage is above 200%

API System: Application plan change

Application 'Default' limit violation - limit usage is above 300%

BEFORE TODAY

Application 'Default' limit violation - limit usage is above 200%

API System: New Application submission

API System: New Service subscription