Ramping VUs

SUGGEST EDITS

With the `ramping-vus` executor, a variable number of VUs executes as many iterations as possible for a specified amount of time.

For a shortcut to this executor, use the **stages** option.

Options

Besides the **common configuration options**, this executor has the following options:

OPTION	TYPE	DESCRIPTION	DEFAULT
stages(required)	array	Array of objects that specify the target number of VUs to ramp up or down to.	`[]`
startVUs	integer	Number of VUs to run at test start.	`1`
gracefulRampDown	string	Time to wait for an already started iteration to finish before stopping it during a ramp down.	`"30s"`

When to use

This executor is a good fit if you need VUs to ramp up or down during specific periods of time.

Example

This example schedules a two-stage test, ramping up from 0 to 10 VUs over 20 seconds, then down to 0 VUs over 10 seconds.

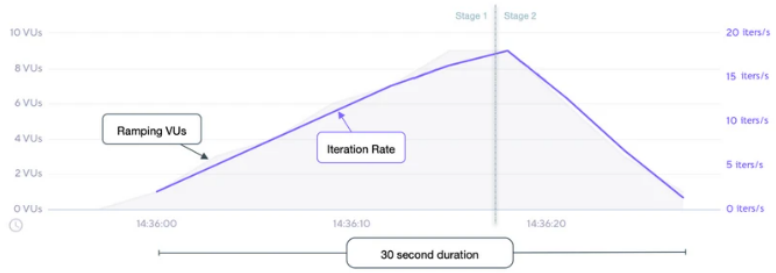
ramping-vus.js

```
import http from 'k6/http';
import { sleep } from 'k6';

export const options = {
  discardResponseBodies: true,
  scenarios: {
    contacts: {
      executor: 'ramping-vus',
      startVUs: 0,
      stages: [
        { duration: '20s', target: 10 },
        { duration: '10s', target: 0 },
      ],
      gracefulRampDown: '0s',
    },
  },
};

export default function () {
  http.get('https://test.k6.io/contacts.php');
  // Injecting sleep
  // Sleep time is 500ms. Total iteration time is sleep + time to finish
  sleep(0.5);
}
```

> **NOTE**
>
> With `gracefulRampDown` set to 0 seconds, some iterations might be interrupted during the ramp down stage.

Observations

The following graph depicts the performance of the example script:



Based upon our test scenario inputs and results:

- The configuration defines 2 stages for a total test duration of 30 seconds;
- Stage 1 ramps *up* VUs linearly from the `startVUs` of 0 to the target of 10 over a 20 second duration;
- From the 10 VUs at the end of stage 1, stage 2 then ramps *down* VUs linearly to the target of 0 over a 10 second duration;
- Each *iteration* of the `default` function is expected to be roughly 515ms, or ~2/s;
- As the number of VUs changes, the iteration rate directly correlates; each addition of a VU increases the rate by about 2 iters/s, whereas each subtraction of a VU reduces by about 2 iters/s;
- The example performed ~300 iterations over the course of the test.

Get the stage index

To get the current running stage index, use the `getCurrentStageIndex` helper function from the k6-jslib-utils library. It returns a zero-based number equal to the position in the shortcut `stages` array or in the executor's `stages` array.

```
import { getCurrentStageIndex } from 'https://jslib.k6.io/k6-utils/1.3.0/ind

export const options = {
  stages: [
    { target: 10, duration: '30s' },
    { target: 50, duration: '1m' },
    { target: 10, duration: '30s' },
  ],
};

export default function () {
  if (getCurrentStageIndex() === 1) {
    console.log('Running the second stage where the expected target is 50');
  }
}
```

Using this feature, it is possible to automatically tag using the current running stage. Check the Tagging stages section for more details.

PREVIOUS
Constant VUs

NEXT
Constant arrival rate

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