Queue·it

Traffic load testing
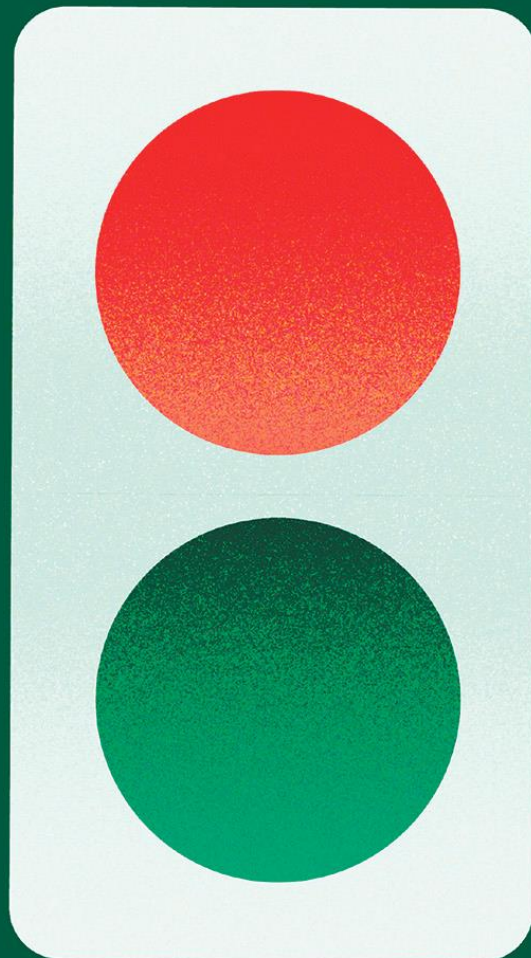
Author:		Martin Pronk		
Creation Date:		November 23, 2018		
Last Updated:		July 07, 2023		
Version:		5.0		

Document Control

Change Record

Date	Author	Reviewed by	Version	Change Reference
2018-11-23	Andrew Morris		4.2	Move to new template
2020-03-20	Skafti Jonsson		4.3	Section 4 updated with changed UI Document style updated.
2020-05-25	Svitlana Leus		4.4	Section 3 updated with new load test results
2020-06-11	Skafti Jonsson		4.5	Only SSL enabled events are eligible for load test
2020-08-21	Skafti Jonsson		4.6	Section 3 updated with new load test results
2020-11-06	Skafti Jonsson		4.7	Updated description of "Keep account on production infrastructure" option Updated terminology
2020-12-30	Skafti Jonsson	Mojtaba Sarooghi	4.7.1	Queue-it load test scripts only support https waiting rooms
2021-10-20	Megan Henry and Svitlana Leus		4.8	Section 3 updated with new load test results
2023-01-31	Balder Jacobsen		4.9	New Logo
2023-07-07	Saviour Gidi		5.0	Update to Section 3 and 4.3 with new loadtest results

Table of Contents

1 Introduction

The following sections describe the content and organization of the document:

- Scope
- Prerequisites for this Document
- Documentation Audience
- Guide to this Document
- Related Information

1.1 Scope

This document is designed for application developers and architects who want to run load tests which include Queue-it.

1.2 Prerequisites for this Document

Prior to reading this guide, readers should be acquainted with Queue-it Technical Integration White Paper, available in the GO Queue-it (go.queue-it.net) Platform or on the Queue-it website. This document describes how the queue works and provides conceptual information that is helpful to understanding the necessary components.

1.3 Documentation Audience

This document is intended for the following audiences:

- Developers
- System Admins
- Architects

1.4 Guide to this Document

This document provides information on what a load test is and how to set up the environment to run a load test. This document is organized as follows:

- Is Load Testing Necessary? Describes the decision behind performing a load test or not.
- Performance of Queue-it. Overview of current load performance of Queue-it environment.
- Load Test the Instructions to run an integrated load test with Queue-it.

1.5 Related Information

Additional documents include:

- Queue-it Technical Integration White Paper —This document summarizes features and provides an overview of the architecture.

If you have feedback regarding the contents of this White Paper, please reach out to Queue-it support

2 Is Load Testing Necessary?

Load testing is a natural and crucial step of any website's development and operation. Queue-it regularly runs automated load tests to ensure always being able to perform.

To execute a load test including the queue, the load test tool needs to simulate the behavior of the end-user's browser. This can be done either with a load test tool that runs a full browser core per virtual user (which is very costly), or with a load test script that needs to simulate all the logic of the JavaScript on the waiting room pages (which is complex). In the latter case, please see section 4.2 (Configure and Verify Load Test Script) for details.

When planning a test, defining the purpose should be started with, and in the context of website and the queue, these are relevant:

- Load testing of the site to find the initial queue speed
- Load testing the waiting room to verify that it can handle the expected load
- Testing the full user journey to verify the integration of the queue

2.1 Load Testing Site to Find the Initial Queue Speed

If it is the first time the waiting room is being used or if the website has been updated, it is useful to have a relatively precise value for the initial queue speed and expected max speed.

To simplify the complexity of the load test, it is recommended not to include the waiting room in the test. All modern load test tools can do a ramp-up or step-up load test that, in an easy way, will give the possibility to simulate different queue speeds. There is no reason to introduce extra complexity by using the waiting room as a step-up function.

2.2 Load Testing the Queue

The purpose of the test is to verify that the queuing system can handle the expected load start by considering the number and speed of the expected load.

If up to 750,000 concurrent users are expected to be in the queue, and they are arriving at a speed of up to 25,000 new users per minute, section 3 (Performance of Queue-it) is relevant for details of the test that Queue-it regularly executes.

If even more users than described above are expected, please refer to section 4 (Load test the Waiting Room) for details on how to set up a load test of the queue.

2.3 Load Testing the Full User Journey

If the purpose of the test is to verify the waiting room integration in the website and to verify the entire user journey, please refer to Technical Integration White

Paper on how to do a manual integration that also tests all error scenarios. Integration testing should not be done with a load test tool.

3 Performance of Queue-it

Queue-it performs load tests on a regular basis. Below, the result of the July 06, 2023 test can be seen. The newest test results can always be requested from support@queue-it.com.

The load test simulates an inflow of 50,000 new users every minute for a period of 60 minutes, until a total of 3,000,000 concurrent users are in the waiting room. Expected wait time is high because we set a small number of outflow speed which is 1000. This outflow speed can be adjusted by Customer in consultation with Queue-IT
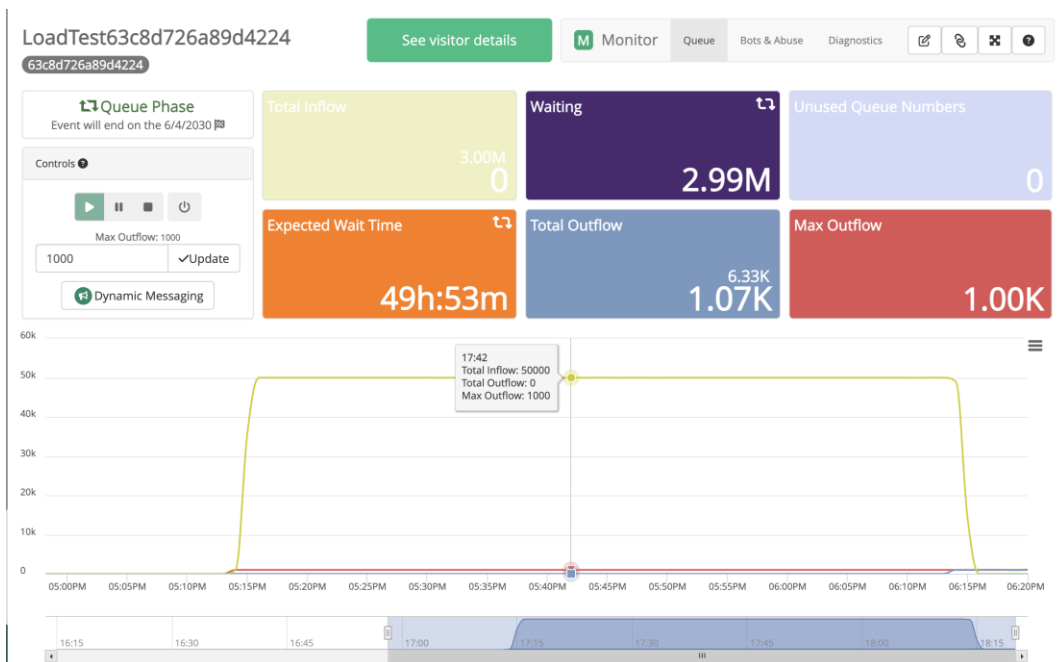
Figure 1: User inflow per minute
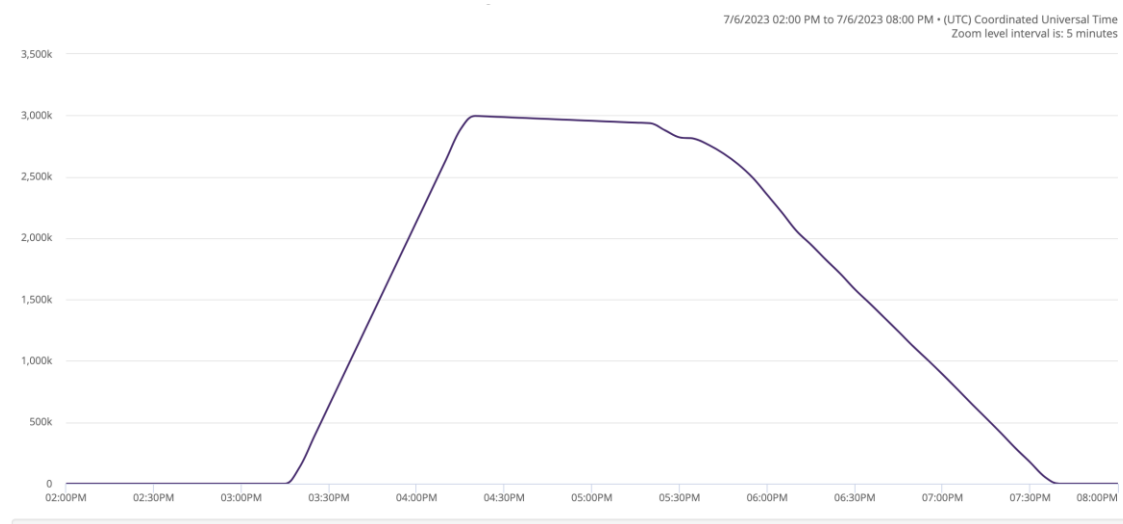
Figure 2: Total number of users in queue
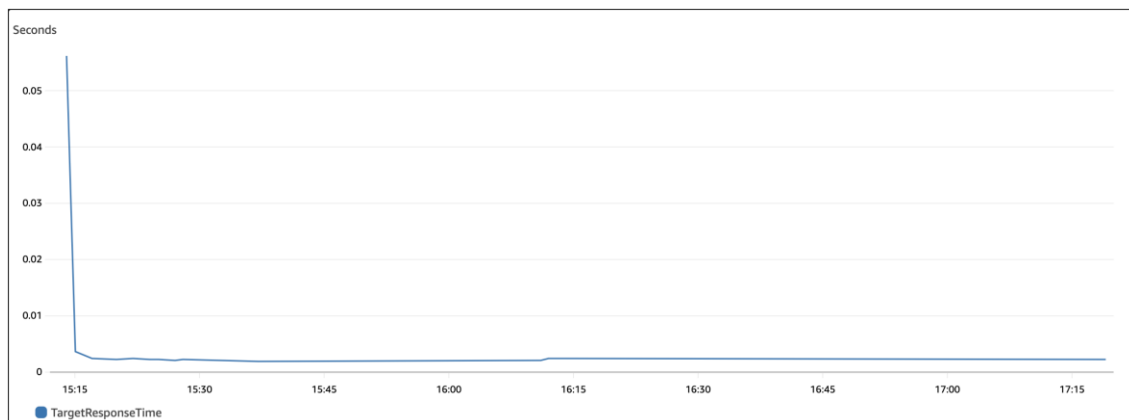
Figure 3: Latency is the time from when the request is received until the response has left our infrastructure
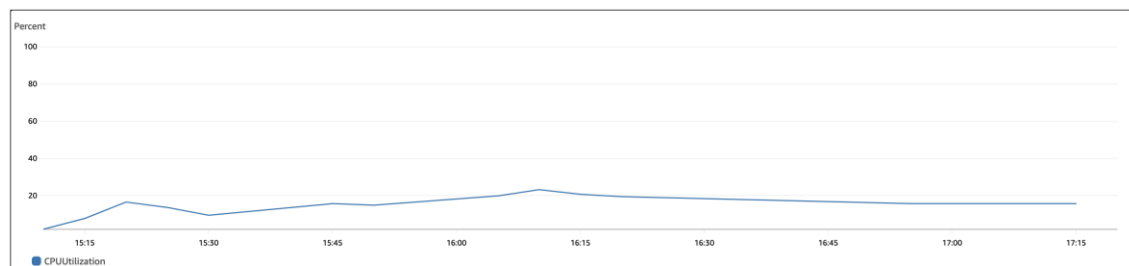
Figure 4: % CPU on queue servers (auto scaling makes it drop)

4 Load Test the Waiting Room

These steps need to be carried out prior to performing a load test including the waiting room:

1. Get the Load Test feature enabled on the account.
2. Configure and verify the load test script.
3. Request a load test environment.

4.1 Queue-it Load Test Feature

Before load testing of the waiting room can be started, the Queue-it Load Test feature on your account must be part of your subscription. Please contact support@queue-it.com.

Without the load test feature, IP addresses engaged in load test will be challenged and presented with captcha. The Load Test feature gives the ability to provision a separate load test sandbox environment where tests can be run without being blocked.

Only SSL-enabled waiting rooms are eligible for load test. On the deployment tab for the waiting room, choose "force SSL" in "Use SSL" drop-down list.

4.2 Configure and Verify Load Test Script

Unless the load test tool uses a full browser core to simulate each virtual user, a simulation of the waiting room pages JavaScript behavior is needed.

> **** Queue-it load test scripts only support https waiting rooms ****

Queue-it provides a sample JMeter script. For the latest version support@queue-it.com can be contacted. Opening the "Fullflow load test V[version number].jmx" file, one variable needs to be specified:

- LOADTESTLINK: The link to the load test waiting room. This link can be found on the Load test details page which is shown after a load test environment has been booked – see section 4.3 (Request Load Test Environment) for details.
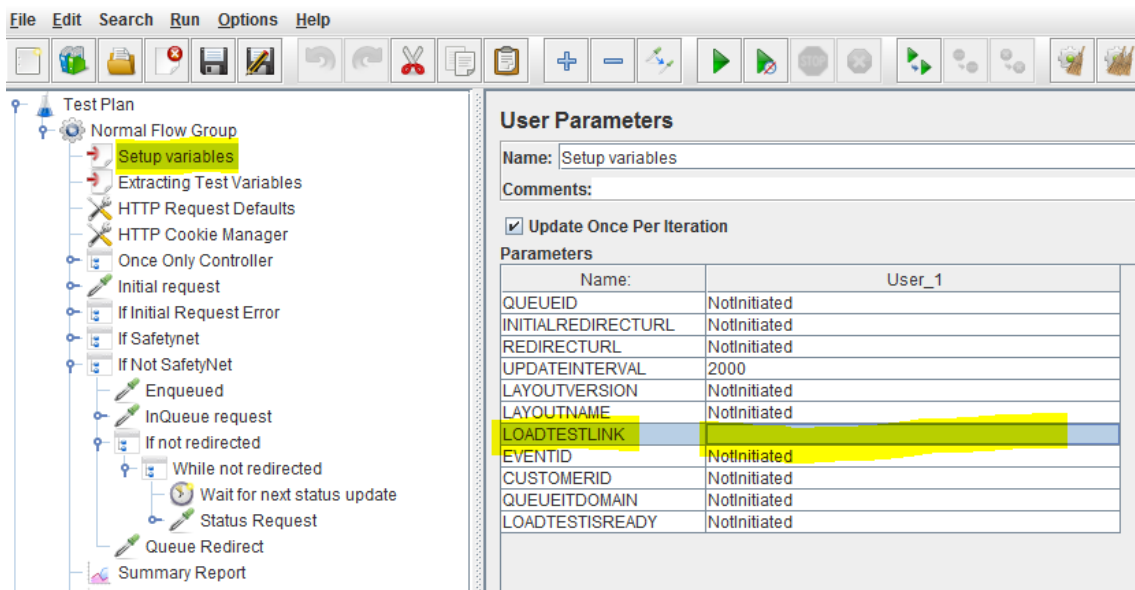
Figure 5: Configuring the JMeter Script

To verify the test set, set the Number of Threads to 1 and the Loop Count to 1 – in this way, IP used will not be challenged by Queue-it's scripting protection.
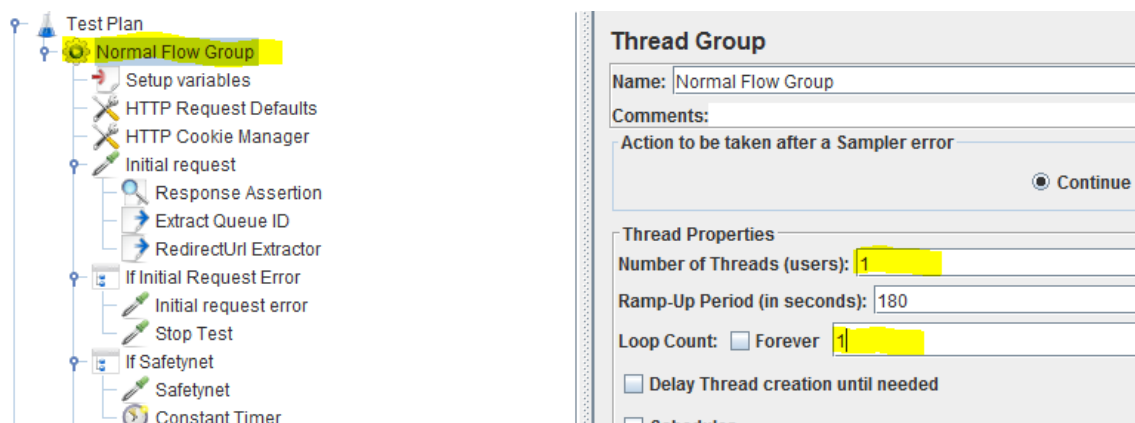

Figure 6: Configuring the JMeter Script

** If the load test script is started before the Load Test Environment is ready, it will fail and stop.

Once the Load Test Environment is ready, the load test can be started again. **

4.3 Request Load Test Environment

Once the Load Test feature is present in subscription, a load test environment can be requested in the GO Queue-it Platform here: https://go.queue-it.net/loadtest/list
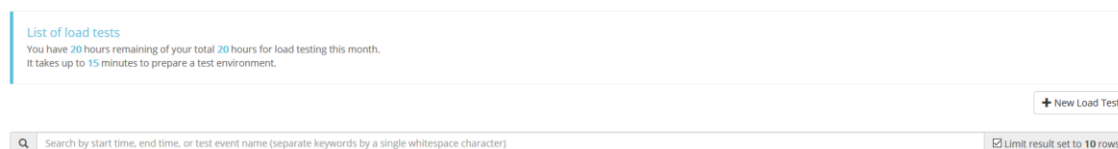
Click the "New Load Test" button to provision a new load test environment.

- Specify the date and time for spinning up the load test environment.
- The two bars "Environment 1" and "Environment 2" indicate when the load test environments are booked/free. Select a date and time that is free.
- Specify how many hours you want to provision the test environment for (max 10 hours per reservation). The load test environment only exists for the specific booked time slot after which the account resumes normal operation.
- Please note that it will take approximately 15 minutes for the environment to get ready. When requesting the load test, a URL will be presented that can be tested against to see if environment is ready.

4.3.1 Keep account on production infrastructure option

Per default the load test environment will encompass the entire Queue-it account. This will be applied unless the option: "Keep account on production infrastructure" is checked.

** The first time this option is required, a description of the load test to be performed should be shared with Queue-it support prior to ordering it. **

The option "Keep account on production infrastructure" should only be checked if the following is true:

- The load test meets certain requirements. These need to be verified with Queue-it.
- The account contains active productions events.
- When the option to "Keep account on production infrastructure" is checked, load test event can be selected.

Advanced

☑ Keep account on production infrastructure
When load test starts at specified start date and time, your entire account will be moved to a separate segment of our infrastructure which does not have inflow protection at all. If you instead want to perform a load test, while still keeping your current production queues unaffected, we also support that. Your account will not be moved if this setting is checked. If you choose to do so, you must ensure that all you load test traffic is sent against the correct endpoint you will configure below when enabling this setting.

Select load test event

test ▼

⚠ Make sure all your load test traffic is sent against this endpoint:
http://t-test-skjotest.queue-it.net?c=skjotest&e=test