



# School Bandwidth Load Testing Instruction Sheet

## SACE Electronic Examinations

### Introduction

This document explains how to run the SACE Electronic Examinations Bandwidth Load Test for IT Managers at SACE exam centers preparing to deliver electronic examinations. A small survey at the end of the test is also included to submit the results of the test and any feedback on the test run process.

---

### Purpose

The purpose of the bandwidth load test is to ensure that the school IT network can support the SACE electronic examinations.

---

### Test Conditions – Examination Room

We are advising,

- to conduct the bandwidth test in the examination room(s) the Stage 2 electronic examinations will be held.
  - for wireless rooms, IT Managers to run several tests at different locations within the room.
  - run the tests during peak network usage at the school or other location, to take into account other network traffic.
- 

### Test Scope

Will test the school's network throughput and response times but does not test the wireless access points capacity.

---

## Device and Browser Requirements

Device Type	Laptop, Desktop
Device Operating System	Windows 7,8.1,10
Device Memory	4GB minimum (appropriate for testing of up to 25 students ) to 16GB maximum (appropriate for testing of 76+ students )
CPU	8 Core minimum recommended.
Device Hard Drive	2GB Minimum free space.
Screen Resolution	1920 x1080
Connectivity	Able to connect to the internet via Wired or Wireless connection.
Administrator Access	Able to install third-party software on the device.
Browsers	Windows – portable Chromium included with the bundle.

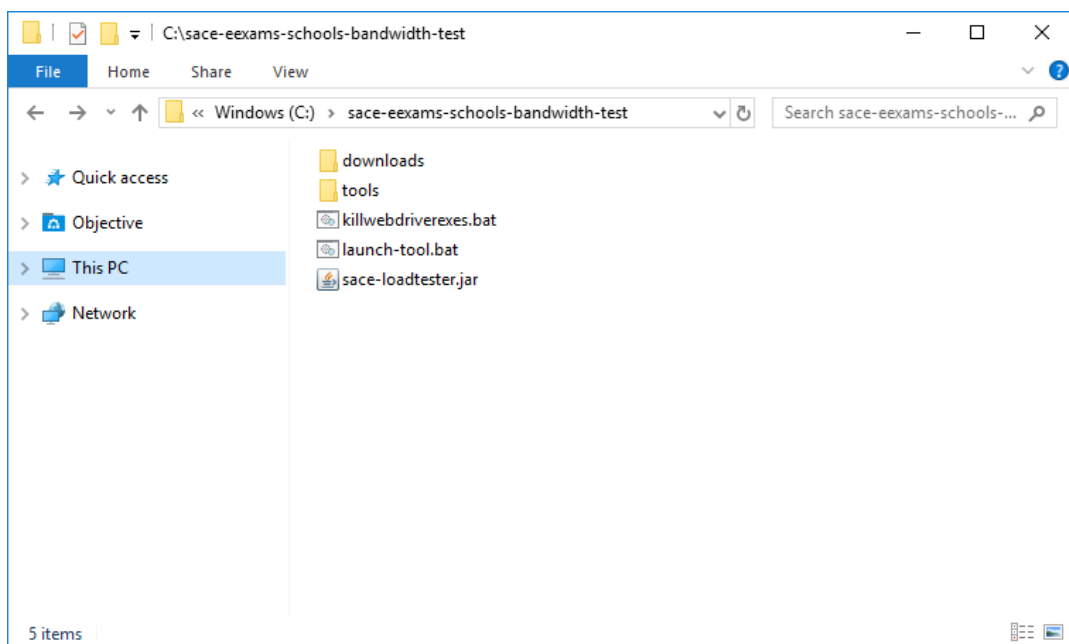
## Prerequisite

Liaise with the SACE Coordinator to determine how many students are enrolled in the online examination subjects. Determine the possible room(s) that may be used to conduct the August Practice Window and November final examinations.

## Instructions

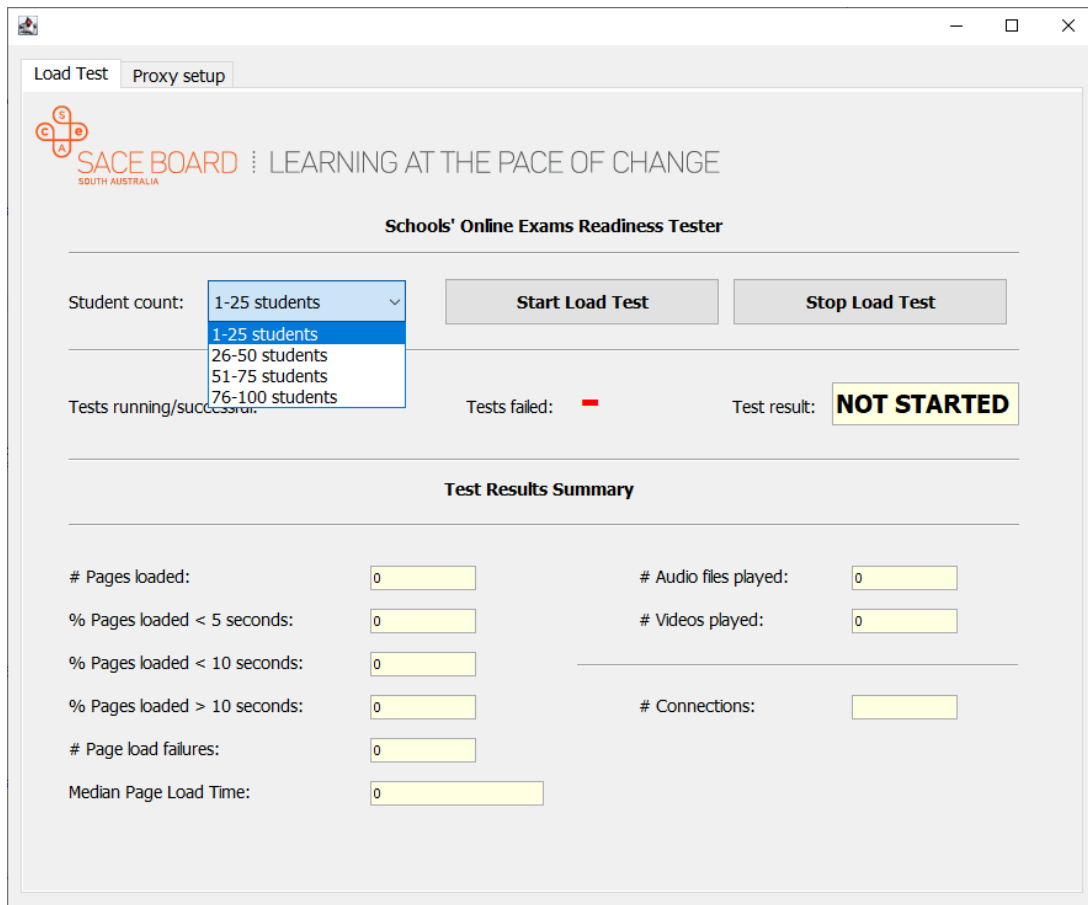
### Part 1 – School Bandwidth Load Test

1. Click on the School Bandwidth Load Test link on the [SACE website](#) to download a zip file titled **sace-eexams-schools-bandwidth-test.zip**
2. Copy and extract the zip file onto your C:\ Drive.



## OFFICIAL

- To run the test tool please double click on the **launch-tool.bat**. The following window will show up,



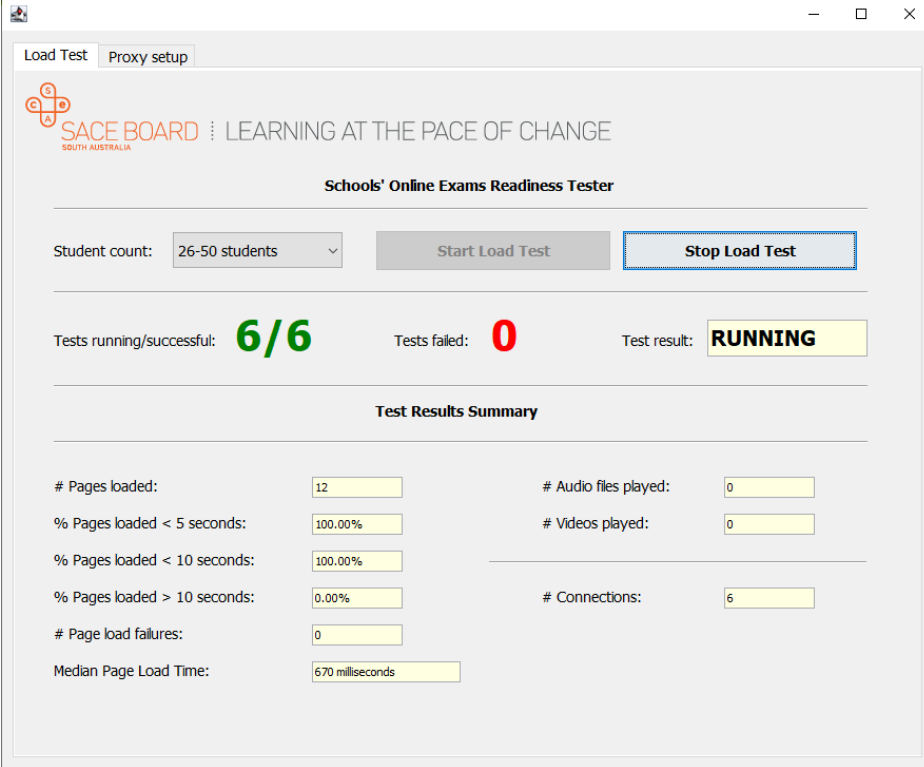
- Review the table below and select the appropriate load test configuration file based on the maximum number of students you need to simulate sitting an exam at your school, device memory and device CPU.

2020 Exam Students	1 - 25	26 - 50	51 - 75	76 - 100
Device Memory	4GB min RAM	8GB min RAM	12GB min RAM	16GB min RAM
Device core CPU	4 (8 recommended)	8	8	16

- Select the appropriate option from the *Student count* dropdown and click the “Start Load Test” button. Refer Appendix 2 – Proxy server settings if your school network uses a proxy server. If you have a high number of students in your school and in case you do not have a high capacity device you can split the test between multiple devices. However, please run the test on all devices roughly at the same time for this load test to be effective.

# OFFICIAL

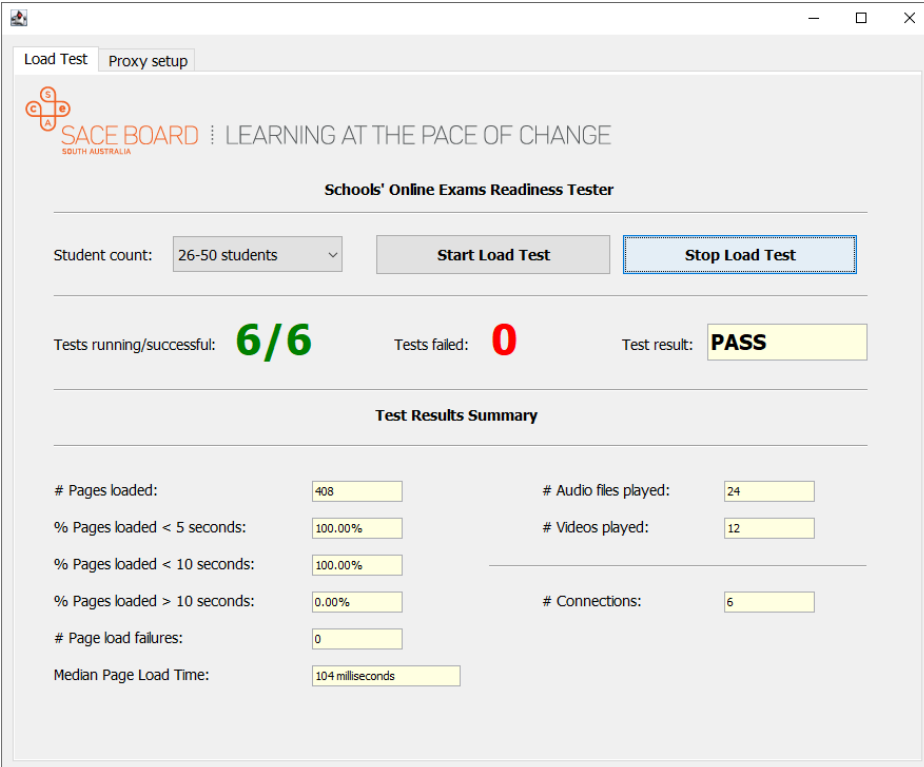
- You will see a status of "RUNNING" in the test result box and you will also see a few Chrome browser sessions which begin running a test exam. Since this test exam has audio/video files you might want to adjust the device speaker volume to a level that suits you.



The screenshot shows the 'Schools' Online Exams Readiness Tester' interface. At the top, there is a logo for SACE BOARD SOUTH AUSTRALIA and the tagline 'LEARNING AT THE PACE OF CHANGE'. Below this, the title 'Schools' Online Exams Readiness Tester' is displayed. The interface includes a 'Student count' dropdown menu set to '26-50 students', a 'Start Load Test' button, and a 'Stop Load Test' button. The test status is shown as 'Tests running/successful: 6/6', 'Tests failed: 0', and 'Test result: RUNNING'. A 'Test Results Summary' section is visible, containing the following data:

Metric	Value
# Pages loaded:	12
% Pages loaded < 5 seconds:	100.00%
% Pages loaded < 10 seconds:	100.00%
% Pages loaded > 10 seconds:	0.00%
# Page load failures:	0
Median Page Load Time:	670 milliseconds
# Audio files played:	0
# Videos played:	0
# Connections:	6

- While the test is running you will be able to see some statistics under the section "Test Results Summary". The expected run-time of the test is 20-25 minutes. At the end of the test, you will see a result of FAIL/PASS.



The screenshot shows the 'Schools' Online Exams Readiness Tester' interface after the test has completed. The test status is now 'Tests running/successful: 6/6', 'Tests failed: 0', and 'Test result: PASS'. The 'Test Results Summary' section is visible, containing the following data:

Metric	Value
# Pages loaded:	408
% Pages loaded < 5 seconds:	100.00%
% Pages loaded < 10 seconds:	100.00%
% Pages loaded > 10 seconds:	0.00%
# Page load failures:	0
Median Page Load Time:	104 milliseconds
# Audio files played:	24
# Videos played:	12
# Connections:	6

The screenshot shows the 'Load Test' tab of the 'SACE BOARD SOUTH AUSTRALIA' interface. The title is 'Schools' Online Exams Readiness Tester'. Below the title, there is a 'Student count' dropdown set to '25 students' and a 'Start Load Test' button. The test results are displayed as follows:

- Tests running/successful: **0/2**
- Tests failed: **2**
- Test result: **FAIL**

Below the results is a 'Test Results Summary' section with the following data:

# Pages loaded:	193	# Audio files played:	4
% Pages loaded < 5 seconds:	98.45%	# Videos played:	2
% Pages loaded < 10 seconds:	98.96%	# Connections:	6
% Pages loaded > 10 seconds:	1.04%		
# Page load failures:	1.04%		
Median Page Load Time:	117 milliseconds		

8. If you get a result of PASS then great all seems well. However, there could be various reasons you can get a FAIL result. We would recommend running the test for a second time to see if the FAIL result is consistent. You will find some screenshots in the load test folder in case there is a failure. The screenshots, a lot of times, indicate what the issue could be. E.g. you might see a network issue.

The screenshot shows a 'Network connection issue' error message. The text reads:

**Network connection issue**

The system is currently unable to perform your request.

Please wait 3 seconds and click on the retry button.

If you continue to experience issues please raise your hand to speak with the invigilator.

**Retry**

9. You can use the "Stop Load Test" button if you would like to stop the load test mid-way or if you want to restart the test.

## Troubleshooting

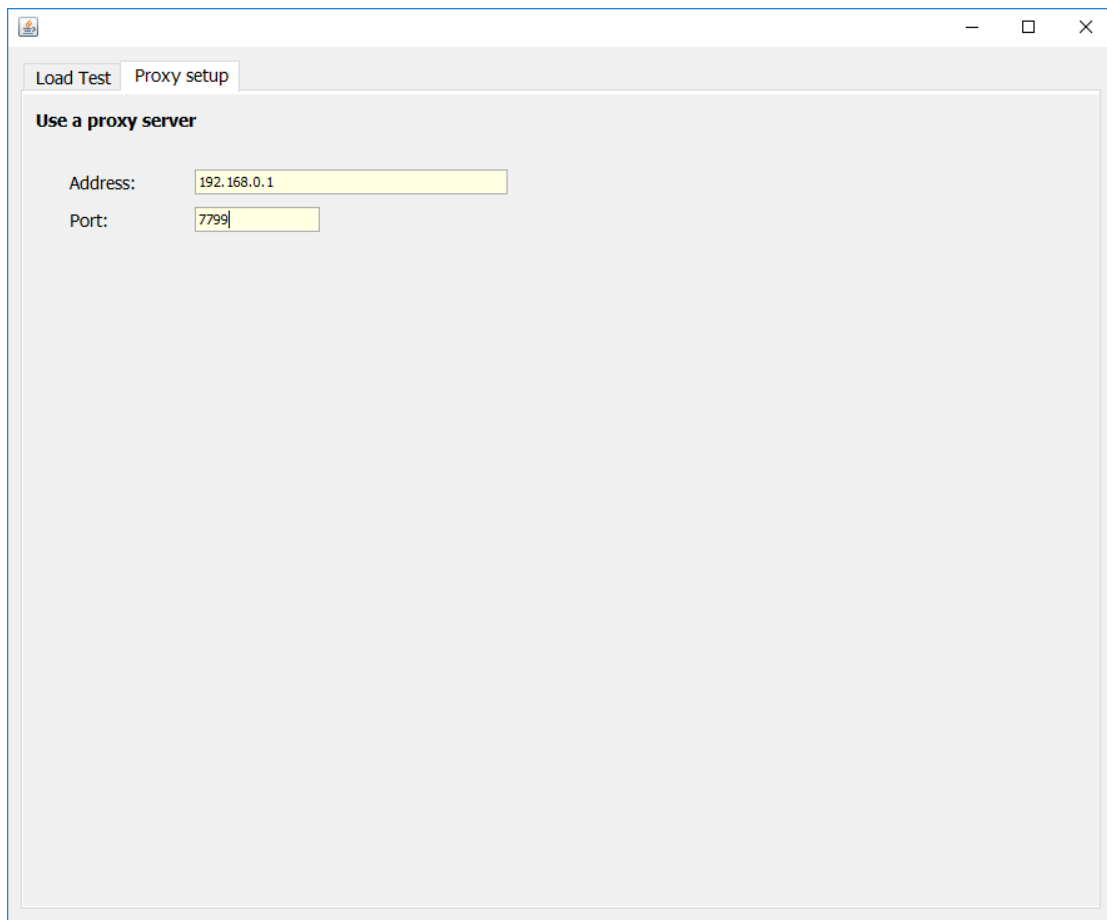
Questions	Answer
1. The device does not have capacity to run the initial load test.	Consider running the load tester across multiple machines simultaneously. e.g. If a school needs to simulate 50 students, either <ol style="list-style-type: none"> <li>I. run one load tester on one laptop configured for 50 students, or</li> <li>II. run 2 load testers, one each on two devices, with 25 students configured per load tester.</li> </ol>
2. Poor response/system lag issue.	Investigate <ol style="list-style-type: none"> <li>I. Device capacity.</li> <li>II. School internet connectivity or traffic.</li> </ol>
3. All other Issues – downloading or installing or running the load tester app	Run the Manual Load Test. Refer Appendix 1: Manual Load Test

## Appendix 1 – Manual Load Test

1. In a web browser, go to <https://www.sace.sa.edu.au/electronic-examination-familiarisation-activity>
2. You will be taken to the Demonstration e-exam
3. Go through all the question pages Q1 – Q9.
4. Play any audio/video in the left hand side section a question.
5. In the right hand side response box, enter 200 words, 8 characters per word (e.g. '12345678' x 200 times is ok).
6. Using the questions navigation bar at the top of the page, click back and forth between Q1 and Q9. Time how many page loads you can complete within 30 seconds.

## Appendix 2 – Proxy server settings

If your school uses a proxy server then you can use the proxy setup to input the IP Address and Port of the proxy server before running the test.



## Queries

If further assistance is required please contact askSACE on +61 08 8115 4700 or [askSACE@sa.gov.au](mailto:askSACE@sa.gov.au)