



School bandwidth load testing instruction sheet

SACE 2020 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 2020 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 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. |
| 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. |

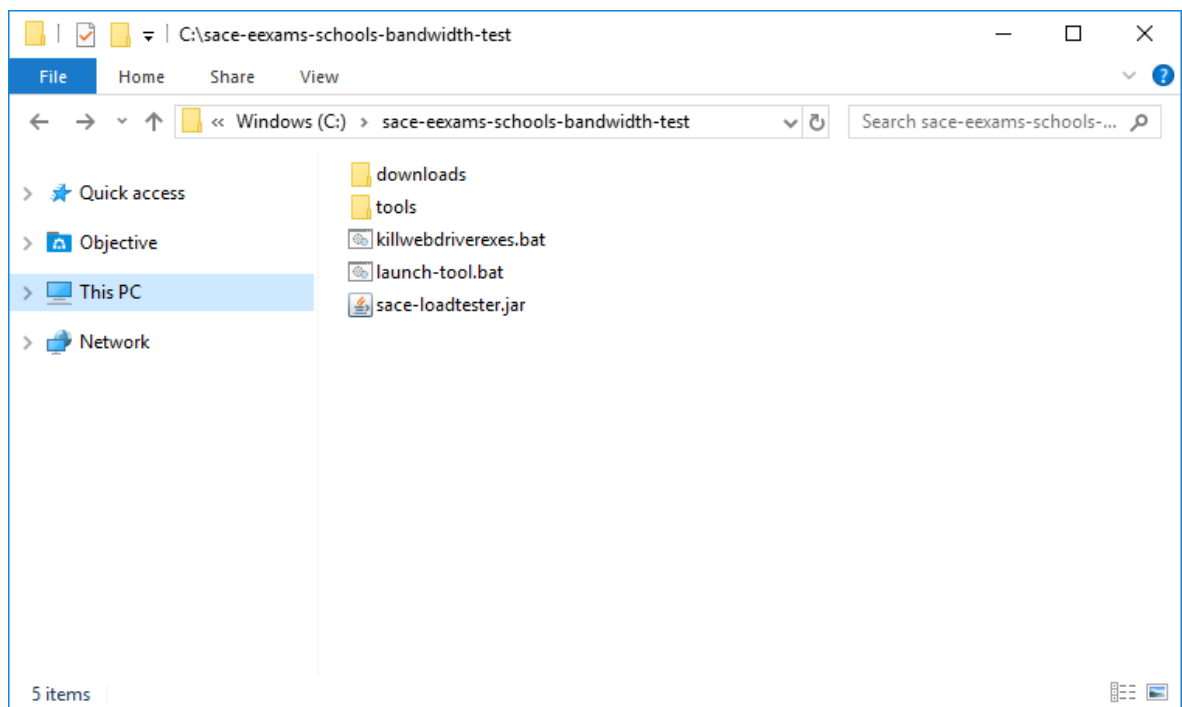
Prerequisite

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.

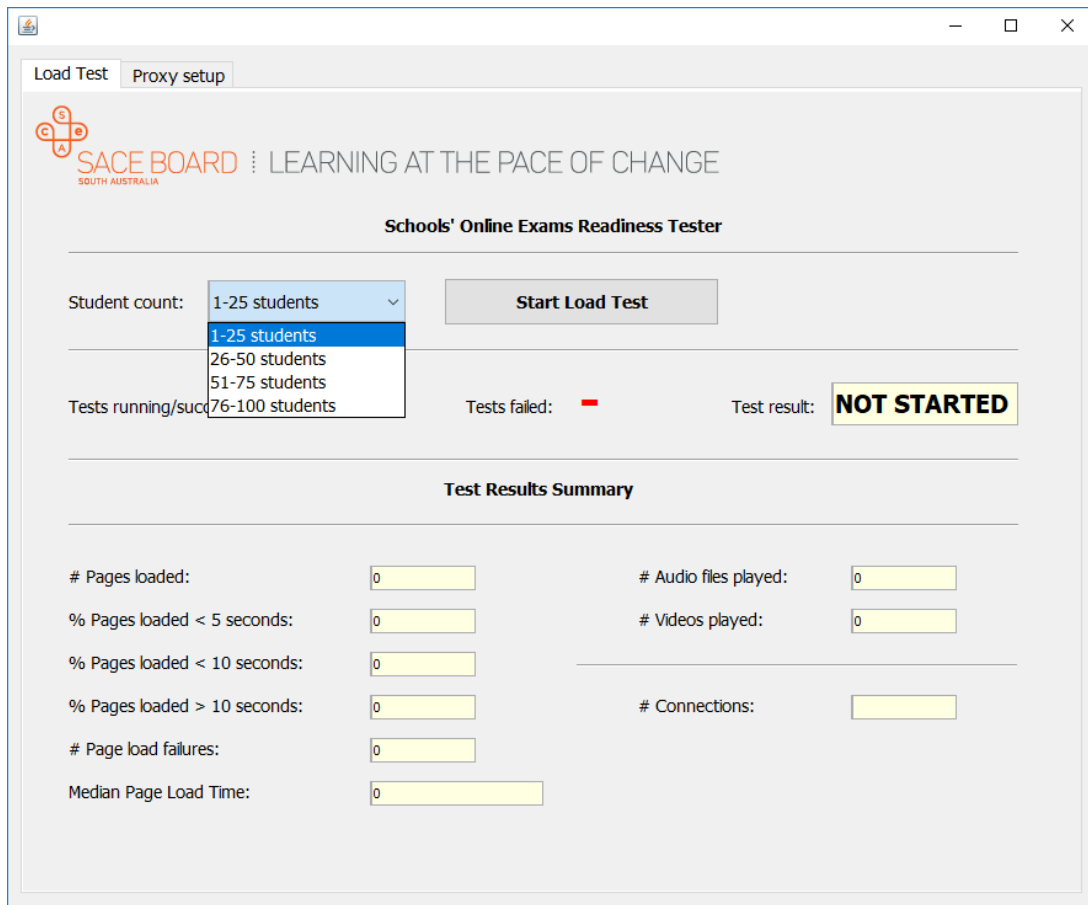
Instructions

Part 1 – School Bandwidth Load Test

1. Go to [Bandwidth testing tool](#) on the SACE website and download the zip file titled **sace-eexams-schools-bandwidth-test.zip**
2. Copy and extract the zip file onto your C:\ Drive.



- 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.
- 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.

SACE BOARD SOUTH AUSTRALIA :: LEARNING AT THE PACE OF CHANGE
Schools' Online Exams Readiness Tester

Student count: 25 students

Tests running/successful: **2/2** Tests failed: **0** Test result: **RUNNING**

Test Results Summary

| | | | |
|------------------------------|---|-----------------------|--------------------------------|
| # Pages loaded: | <input type="text" value="82"/> | # Audio files played: | <input type="text" value="4"/> |
| % Pages loaded < 5 seconds: | <input type="text" value="96.34%"/> | # Videos played: | <input type="text" value="2"/> |
| % Pages loaded < 10 seconds: | <input type="text" value="97.56%"/> | # Connections: | <input type="text" value="6"/> |
| % Pages loaded > 10 seconds: | <input type="text" value="2.44%"/> | | |
| # Page load failures: | <input type="text" value="0"/> | | |
| Median Page Load Time: | <input type="text" value="121 milliseconds"/> | | |

7. 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.

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Schools' Online Exams Readiness Tester

Student count: 25 students

Tests running/successful: **6/6** Tests failed: **0** Test result: **PASS**

Test Results Summary

| | | | |
|------------------------------|---|-----------------------|---------------------------------|
| # Pages loaded: | <input type="text" value="162"/> | # Audio files played: | <input type="text" value="12"/> |
| % Pages loaded < 5 seconds: | <input type="text" value="95.68%"/> | # Videos played: | <input type="text" value="6"/> |
| % Pages loaded < 10 seconds: | <input type="text" value="99.38%"/> | # Connections: | <input type="text" value="3"/> |
| % Pages loaded > 10 seconds: | <input type="text" value="0.62%"/> | | |
| # Page load failures: | <input type="text" value="0"/> | | |
| Median Page Load Time: | <input type="text" value="141 milliseconds"/> | | |

The screenshot shows the 'Load Test' tab of the 'SACE BOARD SOUTH AUSTRALIA' interface. The page title is 'SACE BOARD :: LEARNING AT THE PACE OF CHANGE' and the main heading is 'Schools' Online Exams Readiness Tester'. Below this, 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**

The 'Test Results Summary' section provides 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: | 2 | | |
| 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.

At the bottom of the message is a black button with the text 'Retry'.

Part 2 – School Bandwidth Load Test Results and Online Survey Completion

1. Submit the information contained in the console window or results file to the online survey:

https://sace.formstack.com/forms/e_exams_schools_schools_bandwidth_testing_2020

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">I. run one load tester on one laptop configured for 50 students, orII. run 2 load testers, one each on two devices, with 25 students configured per load tester. |
| 2. Poor response/system lag issue. | Investigate <ol style="list-style-type: none">I. Device capacity.II. School internet connectivity or traffic. |
| 3. All other Issues – downloading or installing or running the load tester app | Run the Manual Load Test. Refer Appendix 1: Manual Load Test |

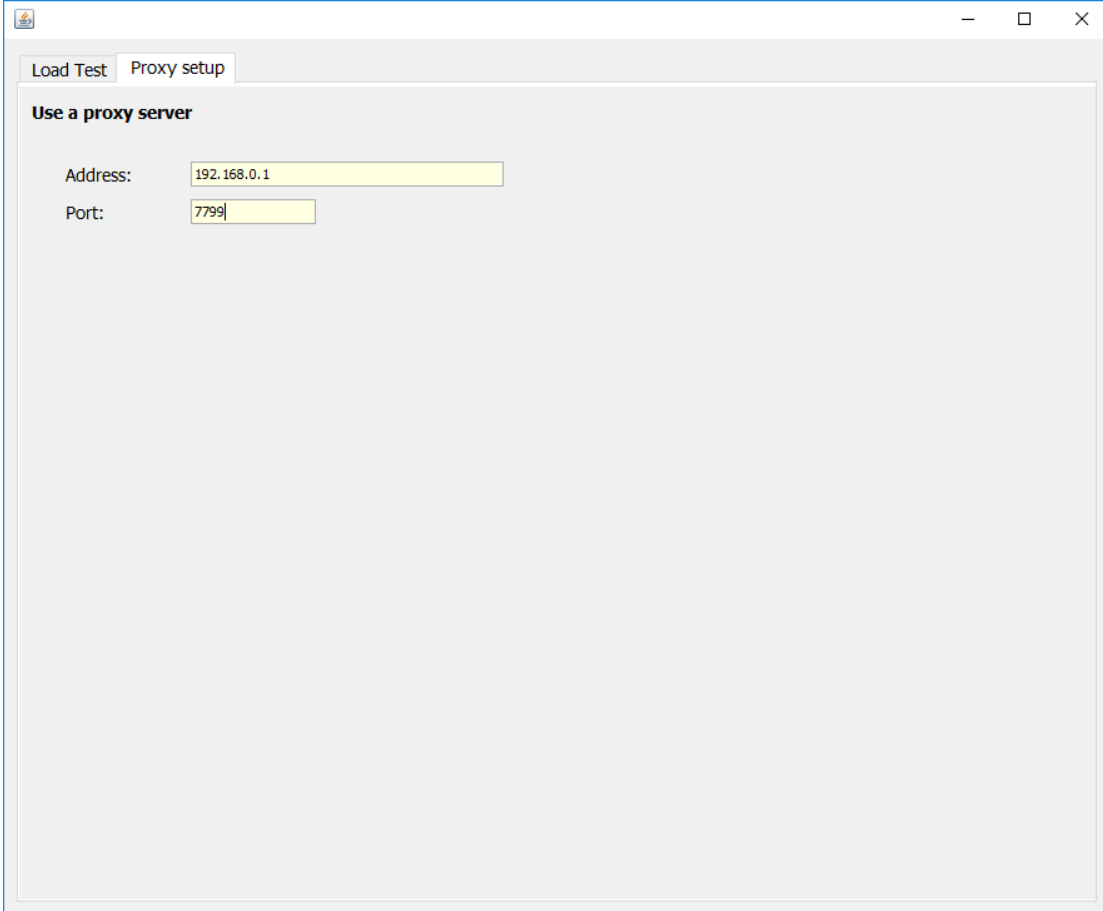
Appendix 1 – Manual Load Test

1. In a web browser, go to [https://www.sace.sa.edu.au/studying/assessment/exams/preparing#Learn-how-to-use-the-e-exam-system-\(e-exam-only\)](https://www.sace.sa.edu.au/studying/assessment/exams/preparing#Learn-how-to-use-the-e-exam-system-(e-exam-only))
2. Click on 'Take the demo e-exam'
3. Go to Q1.
4. In the right hand side response box, enter 200 words, 8 characters per word (e.g. '12345678' x 200 times is ok).
5. Go to Q2
6. Repeat step 4.(hint: you can copy and paste from Q1)
7. Using the questions navigation bar at the top of the page, click back and forth between Q1 and Q2. Time how many page loads you can complete within 30 seconds.
8. Record your answer from 7
9. Submit the information to the online survey:

https://sace.formstack.com/forms/e_exams_schools_schools_bandwidth_testing_2020

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.



The image shows a screenshot of a web application window titled "Load Test". The window has two tabs: "Load Test" and "Proxy setup". The "Proxy setup" tab is active. Below the tabs, there is a section titled "Use a proxy server". This section contains two input fields: "Address:" with the value "192.168.0.1" and "Port:" with the value "7799".

Queries

If further assistance is required please contact askSACE on +61 8 8115 4712 or askSACE@sa.gov.au