

THE WHITE PAPER
**SMART
EXAMINER**



**RATELSOFT
NIGERIA
LIMITED**

**SIMPLE AND
FLEXIBLE CBT
SOLUTION**

AVAILABLE OFFLINE AT
RATELSOFT.COM AND
ONLINE AT EXAMINA.IO

RATELSOFT'S SMART EXAMINER

The 5-in-1 Computer Based Testing Solution

Now available online at examina.io

HIGHLIGHTS

CBT SOLUTION: EASY & FLEXIBLE

ONE TOO MANY PLATFORMS: PLATFORM INDEPENDENT

NETWORKABLE AND DYNAMIC: SCALABLE APPLICATION

EXAM STATE TRACKING AND BROWSER EXCLUSION

Suitable for all schools, training centres and organizations

SmartExaminer is a 5-in-1 Computer-based testing software package. If you ever find the need to conduct an e-Assessment, e-Testing or e-Examination, then SmartExaminer is just perfect for your need. SmartExaminer offline version can be downloaded from smartexaminer.ratelsoft.com while the online version is available at examina.io

It will interest you to know that SmartExaminer runs on all major operating systems seamlessly. We encourage you to download the application from our website which allows you to test almost all the features before choosing to pay. We are certain it will surpass your expectations.

This application is mostly installed on one PC which would serve as the server PC and all networked computers can access the software through the smart examiner client over a local intranet connection.

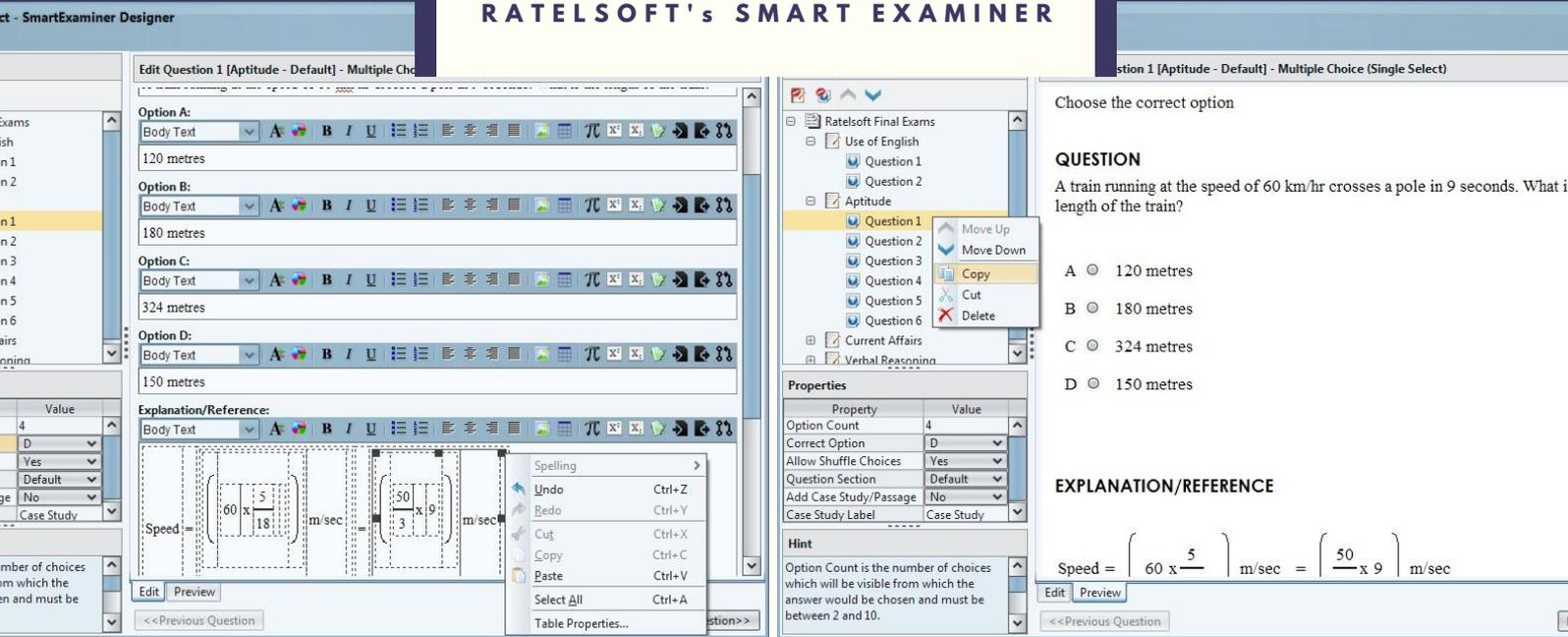
We are aware that situations like power failure can be unforeseen most times and as such we have developed SmartExaminer to adapt to such an unwanted event. SmartExaminer keeps track of each examinees' exam progress and automatically starts from where an examinee stops if a power failure is encountered and the system is restarted. This also works in cases where the examinee has to make use of a different system from the one previously used.

Please take out time to digest the information and features of SmartExaminer in this booklet.



The Designer

RATELSOFT'S SMART EXAMINER



The Designer application is responsible for building questions which would serve as the test questions for the test/exam. This software is very easy to use and learn.

The idea of making it a separate application has several advantages including the ability for teachers/lecturers to build questions themselves and customize the test/exam to their taste. This application is highly flexible and adapts to several requirements, and is provided for FREE. Several tools have been made available to allow complex questions sets to be easily developed.

With the designer, exams can even be configured as mock/training exams which shows the answers and explanations at the end (if needed). The application allows for multiple subject exams and a means to randomly pull questions from a question bank.

Feature Set

- Question Bank Feature which allows different questions set for different examinees
- Question Value Configuration which allows questions to be assigned as half mark.
- Question Randomization
- Options Randomization
- Exam Branding to show school or organization logo and colour
- Multi-Paper Support to allow writing multiple subjects within a single exam
- Question Sectioning and Settings which enables questions to be grouped together
- Settings for Integration with SmartSkool.
- Audio-Enabled Questions.
- Different Exam Modes, an example of which all examinees can be made to start together
- Project Design & Reuse allows saving and merging exam problems for later editing
- Questions can be built and imported from text files and wordpad.
- Questions can be download from our servers which has over 60k questions from different subject areas.
- Questions can have images, tables, colours, fonts, all flexible to different needs.
- Massive symbols bank and pre-defined question templates for mathematical questions.
- Questions are encrypted and therefore maximum security is ensured.
- Online Designer at <https://designer.name>

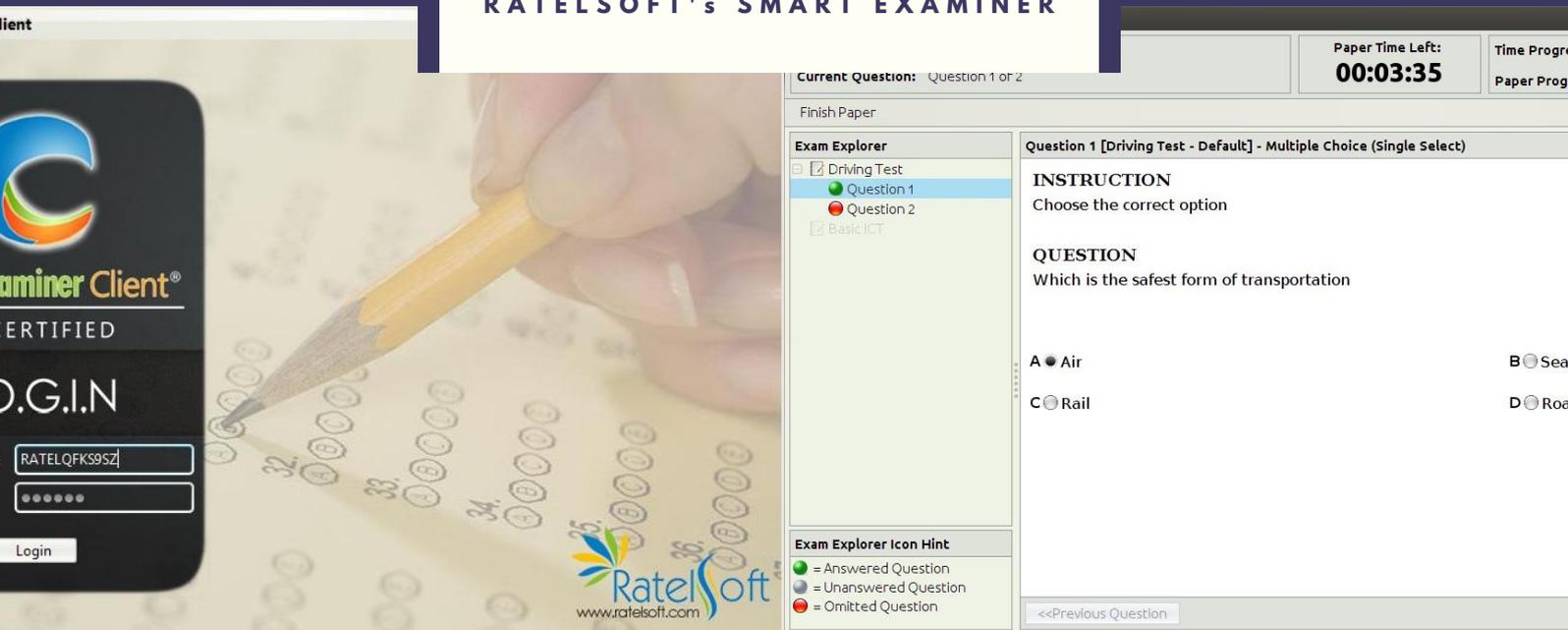


Designer Features Explored

- **Question Bank feature:** This feature allows an exam configuration for which there can be several hundreds or thousands of questions and exams questions are drawn from it randomly for each examinee. For example, an exam could be designed with 500 questions but just 50 questions are needed for the exam.
- **Question Value Configuration:** The value for each question can be customized. A question can be set to have a value of ½ mark or 1 or 2 marks, basically from 0.1 through 10 or above.
- **Question Randomization:** Questions can be set to be randomized which will appear differently for all examinee.
- **Options Randomization:** By default, the options are randomized. However, this can be configured at will. This will further curb exam malpractice.
- **Exam Description:** Exams can have a general description and general instructions which would be visible to examinee at the start of the Exam.
- **Exam Branding:** Exams can be branded with logo/image and colour. This allows customizing exams for several clients. The image and colour appears just before the start of the Exam on same page as the exam description and instruction.
- **Multi-Paper Support:** An exam can have multiple papers and the exam can be configured to either allow examinees to navigate across each or to write them one at a time. Each paper can be configured to have different exam time. An exam can also have several papers but each examinee is writing only the papers that relates to them. For example, taking JAMB for instance, an exam can have 23 subjects/papers, however, each examinee is writing just 4 of the papers. This mapping is done in the Manager. Each paper can also have their separate instruction and description aside the general exam instruction if required.
- **Building Questions:** Questions can be built directly on the App or imported from plain text files and/or Rich text files. Questions can also be imported from other designer projects.
- **Audio-Enabled Questions:** You can add audio files with multiple configuration to questions for listening exercises.
- **Question Sectioning and Settings:** The exam can be customized with sections and each section can have their own rulings by either randomizing questions in that section or leaving them in the sequential order. This can be best in exam like Use of English which can have several exam sections like Comprehension, Opposite in Meaning, Fill in the blanks. Comprehension questions can be grouped in a section and be configured as sequential whereas, question in the Opposite in meaning can be configured to appear randomly.
- **Different Exam Modes:** Several exam modes have been developed which can be employed. They are:
 - a. **Force Continuous:** This mode allows the examinee to start his/her own exam. In a case of multiple papers, and a setting for which the papers have to be written differently, the force continuous setting automatically starts the second paper after the first.
 - b. **Server Controlled:** In this mode, the manager is responsible for starting the exam on all connected devices. All examinees start the exam at once. In a case of multiple papers, and a setting for which the papers have to be written differently, this mode reverts to Force Continuous after the first paper.
 - c. **Client Controlled:** The examinee chooses when to start the exam and also which paper to start (in a case of multiple papers).
- **Multi-Choice Options:** Each Multiple-Choice question can have up to 10 options. The interface allows for inserting several elements like images, table, lists, fonts, and symbols. Some templates which can be reused have already been developed to simplify mathematical expressions.
- **Training Exams:** Exams can be configured to show the correct options and explanations at the end of the exam for cases where an exam is being used for trainings or for demonstrations.
- **Project Design & Reuse:** The designer allows Exams to be built and saved in a single file as projects which can be edited at any time.
- **Question Downloading:** SmartExaminer Designer can make use of our Questions web service API to access our Question bank of over 60,000 questions from different subject areas.
- **Multiple Question Types:** 3 question types have been developed. More types are on the way...

The Client

RATELSOFT'S SMART EXAMINER



The Client is the application which is used by the examinees to take exams. The application can either be launched from a web browser running on a webserver hosted by the Ratelsoft Server Application software or can be launched by using the SmartExaminer Client Launcher Application. Recently, browsers have disabled default support for Java which resulted in the Client Launcher Application to be made. By using the Client Launcher, browsers are now optional.

An examinee can log into the client application with the details defined in the manager for that examinee. After logging in, the examinee sees all exams mapped to him/her.

This software is a Java web start application and is installed as a module on the same system in which the Ratelsoft Application Server would be installed on. The Client Launcher App is shown below.

Client Features

- The software can be customized from the manager application to show (or not to show) results at the end of the exam.
- If the exam is designed as a training exam, the software shows the correct answers and explanations (if available) at the end of the exam.
- The client app automatically submits the results to the manager application and reports any established or terminated connections together with the computer name from which it was initiated.
- This software communicates and receives commands and exam start approval from the manager application and responds appropriately.
- Keyboard Navigation & Selection: Examinees can use the keyboard for navigating across questions and also for selecting answers.



The Manager

RATELSOFT'S SMART EXAMINER

Examiner Manager [Logged in as: ADMIN] (Unregistered; Demo Version)

Accounts Reporting Help

Examinees Groups

Details for Richboy Echomgbe

Firstname: Richboy
Middlename:
Lastname: Echomgbe
Email:
Phone Number:
Gender: Male
Examinee Code/ID: RICH
Examinee Passcode: hidden
Date of Birth:

Active Exams to which Richboy Echomgbe has been mapped

| Exam Code | Exam Title | Mapped Start Time | Connection Status | Score | Map New Exam |
|-------------|-----------------------------|-------------------|-------------------|-------|----------------------|
| JEWEL | Jewel Exam | Anytime | FINISHED | 55 | Unmap Exam |
| AUDIOJEWEL | Audio Jewel Exam | Anytime | FINISHED | 7 | Start Exam |
| VERSION3 | Version 3 Exam Test | Anytime | FINISHED | 11 | More Mapping Details |
| VER3 | Another Version 3 Exam Test | Anytime | FINISHED | 0 | See Exam Result |
| MULTI | Multiple Paper Exam | Anytime | FINISHED | 8 | Clear Result |
| FINALS | FINAL EXAMS | Anytime | FINISHED | 0 | Clear Backup File |
| NEWEXAMTEST | New Exam Test | Anytime | DISCONNECTED | 0 | Generate Report |

Groups which Richboy Echomgbe belongs

| Group Name | Group Description | Examinee Count | Group Creator | Add to new Group |
|--------------------|--------------------------------|----------------|---------------|-------------------|
| All Applicants | The list of all 2019 applic... | 1361 | APP ADMIN | Remove From Group |
| May 2018 Examinees | The 2018 examinee list | 1 | APP ADMIN | Generate Report |

2 on list.

Any added Properties from the right would be replaced by the corresponding value of each Examinee. Double-Click a Property on the right to Add to the Email.

Email message sending would be paused for about 10 secs between successive recipients to reduce traffic on Ratelsoft servers.

From (Name): Ratelsoft Scholarship Board
From (Email): no-reply@ratelsoft.com
Subject: Your examination schedule

Message:

Body Text

Ratelsoft

Dear %FIRSTNAME% %LASTNAME%,

Export Import Send Test Email

Edit Preview

<< Previous

The Manager is the central hub of the SmartExaminer application. This application manages all exams and examinees and performs several other useful functions. It communicates with the Ratelsoft Application Server software and the SmartExaminer client application and ties the nut between them.

The Manager application receives the exam files from the designer software and assigns examinees for the exam. Examinees can also be added via several file formats from existing data to the software.

The Manager also allows for complete control of the exam on all clients. This means that the exams on all clients can be started with just one click from the Manager application (if the exam has been designed to be server-controlled). Several other commands can also be sent to all clients or specific clients from the manager application.

Manager Features

- Flexible live exam configuration to show or not show scores on the client side.
- Examinee addition via Excel and CSV files.
- User accounts to control data access.
- Assign examinees to exams and groups.
- Groups can be created to model classes or arms or departments or even course options
- Receive notifications when examinees connect to exam with system identification. Track illegal connection from outside the exam hall or multiple connections from examinees.
- Send commands to clients to show examinee details. Useful for identifying mercenaries.
- Send emails to examinees about exam times and login details even to exam scores.
- Aggregate results from multiple Manager installations to easy shortlisting.
- Add custom additional properties like student matric number, faculty, class.
- Add images for examinees either from file or webcam.
- Toggle exam visibility to improve security.
- Generate reports in Excel and PDF formats with custom filter options.
- Live Screen and webcam monitoring of Examinees.
- Stop Exam Command to control Exams.
- Graphical reports and statistics.



Manager Features Explored

- **Exam Scores:** Exams can be configured to show or not to show exam results on the examinee end. This feature is built on the manager because it allows the admin to change the decision even while an exam is on. All Client Apps receive the command and act accordingly.
- **Examinee Addition:** Examinees can be added via several means. Examinees can either added directly on the App using a Tabbed form or imported from files. Supported files are Excel, CSV, TSV, and in general, any delimited file can be parsed and processed.
- **User Accounts:** multiple users can be created with definable permissions.
- **Exam Mapping:** Examinees are mapped to exams and to papers within the exam. An exam time can be configured during the mapping which would control when an examinee can start an exam.
- **Groups:** Groups can be created for examinees which will make collective processing easier. In a school setting, a group can be classes and/or arms. Groups can be added to other groups to be part of a larger group. An examinee can belong to multiple groups. Groups can be mapped to exams and papers and allotted time.
- **Notifications:** The Manager receives visual notifications of activities from the client end. Activities ranging from connection to disconnection to exam completion to illegal processes can be subscribed to via notification settings.

Security Features: SmartExaminer was built with security at the core. Several security features have been developed to ensure the delivering of a safe exam. Some of them are:

- a. **Exam Tracking:** Each examinee that has connected to the system is tracked by the manager. An attempt to login from another system when the initial connection is active is stopped and reported to the manager via notifications. In a case where the systems are numbered/tagged, the manager is informed of the PC initiating the secondary connection as well as the primary connection device.

b. **Exam Start Permissions:** Due to network and wireless connectivity in private networks, it is possible for an examinee to start an exam from some other place other than the designated exam hall. This feature allows granting permissions to only those who have entered the hall. The manager is informed of any attempt to start an exam when the user has not been granted approval and the attempt is denied on the client end.

c. **Client Commands:** The manager can send commands to all clients to show the registered picture and details of each examinees. This window cannot be closed by the examinee until the manager issues a close command. The window shows via a smooth animation, allowing the examinee to still continue with their work. This can allow invigilators to confirm that the examinee is the very person writing the exam. This can also be configured to show from the start of the exam.

Email Feature: With SmartExaminer manager, emails can be sent to all examinees. Properties can be defined within the email to customize it for each examinee. Information like login details for the exam, exam time, even to exam scores can be added to email messages and easily sent.

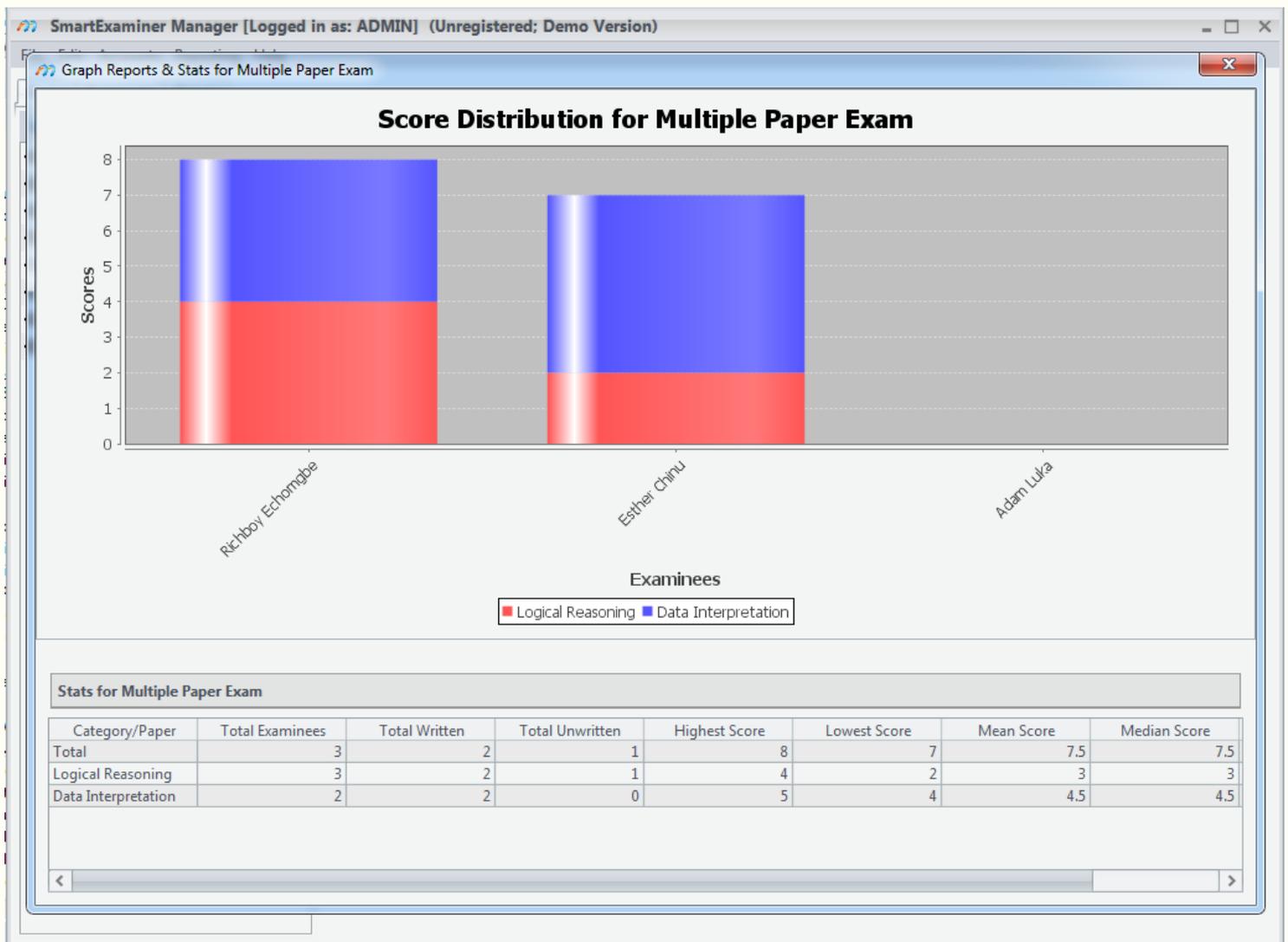
Multi-Centre Aggregation: There are times where exams can be written at different centres. The manager allows exportation and importation of results for examinees. This can allow for easy collation and shortlisting from a single system.

Additional Properties: The manager allows adding custom additional properties. By default, properties like Examinee Code, Examinee Passcode, First Name, Middle Name, Last Name, Date of Birth, Gender, Phone Number and Email address can be provided for each Examinee. However, there are times where additional custom properties are needed aside the above listed. The manager allows for easy addition of more fields which can be used anywhere like for searching/filtering for Examinees with additional properties matching a given pattern.



Manager Features Cont'd

- **Examinee Images:** Images can be added for each Examinee from file and/or from Webcam. Images can also be added from a folder. This is best for processing several Examinees at once. For instance, the images of applicants online can be downloaded to a folder and the manager reads the folder and adds the images for each Examinee all at once.
- **Exam Visibility:** Exams can be marked as invisible which can cause examinees not to see it for starting. This can allow exams to be prepared ahead of time but only visible when it is supposed to be written.
- **Live Exam Monitoring:** Video monitor and capture the screen and webcam of examinees and send commands.
- **Reporting & Shortlisting:** Every listing in the App can be generated as reports in either Excel/PDF. In addition, the reporting engine in the Manager App allows for custom reporting that can cover almost every form (if not every form) of shortlisting or filtering for Examinees. The custom report Environment is very friendly to those familiar with SQL. A screenshot of the custom reporting environment is shown below. Reports can also be customized with additional blank fields. This can be useful for generating reports like a signing sheet where Examinees can sign in/out of an Exam.
- **Graphical Report and Stats:** This allows you to see graphical performance of students and statistics for each exam.



The Inspector

RATELSOFT'S SMART EXAMINER

The screenshot displays the SmartExaminer Inspector application window. The title bar reads 'SmartExaminer Inspector 1.'. The interface is divided into two main sections. On the left is the 'Exam Explorer' pane, which contains a tree view with 'Sample Mac Test Exam' selected. The main area on the right is titled 'Sample Mac Test Exam' and contains the following information:

- Exam Code: MACTEST
- Exam Title: Sample Mac Test Exam

Below this information is a table with the following data:

| Examinee ID | Name | Score | Maximum Score |
|-------------|-----------|-------|---------------|
| RICH | RICH DAVE | 7 | 11 |

To the right of the table are three buttons: 'See Full Result', 'Export this to File', and 'Export Results to File'. At the bottom right of the main area, it says '1 on list.'.

The Inspector Application is provided as a fail-safe in some unforeseen circumstances. This App is a run-only App that allows an admin to see all reports stored on a client machine. The reports can be generated in PDF and Excel formats. The Excel formats can be imported to the manager as-is for proper aggregation.

SmartExaminer automatically attempts to repair failed network connections by re-initiating connections from each end. However, if the network infrastructure goes down entirely, the client application will fail to report the scores to the server. This application can be used to retrieve the scores of students in each system.

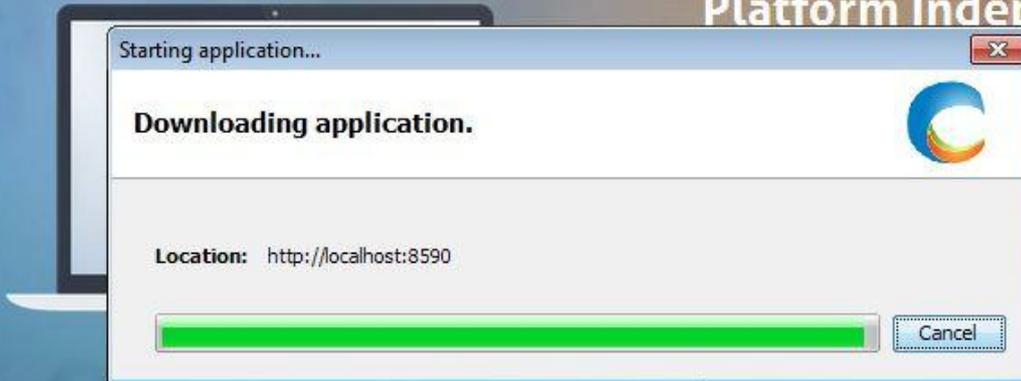
The Application Server

RATELSOFT'S SMART EXAMINER

SmartExaminer

 CERTIFIED

One too many platforms: Platform Independent



ted on all major platforms and runs successfully on Windows, to be available on tablet devices

rsel yourself about what operating system got you covered.

[MORE DETAILS](#)

This application hosts the web server which makes the SmartExaminer Client software available to all clients. The software can scale seamlessly to thousands of computers and can even dynamically adapt to new connections. This application can be installed on any modern computer/laptop in order to make it a server. We recommend a minimum specification of 2GB RAM, 2.0GHz dual core processor and 3GB free hard drive space. As always, the higher the better.

Outside the context of SmartExaminer, this software hosts all Ratelsoft server enabled applications. Applications which are designed to be intranet enabled are powered by this software.

The application runs on a dedicated port and this ensures that other software products do not conflict with it.

Additional Features

RATELSOFT'S SMART EXAMINER

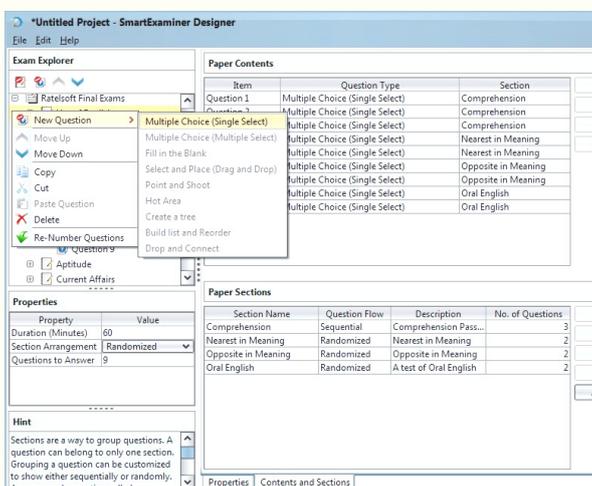


Fair Exam for All!

Case: Your CBT exam runs on a browser. Right!. What happens to a user who closes the browser window intentionally/accidentally?

In most cases, it is either the user forfeits the exam or restarts from the beginning. We do not need to discuss the forfeiting part which is obviously unfair. Now depending on the application, if the user restarts the exam, the user may end up taking same questions as before gaining additional time on previously answered questions which will be unfair to all others.

SmartExaminer rejects every attempt to close while an exam is on and tracks the progress of each examinee on the local system and as well as on the server. In an unforeseen power failure, on restart, the user continues from where he/she stops. If the user needs to continue on another system, the server sends a copy of the saved state.



Multiple Subjects, One Exam.

With SmartExaminer, multiple papers/subjects can be configured within an exam and administered to thousands of students, each student with their own subset of subjects to take for the exam.

Exams can be configured to allow students switch between papers or take them sequentially.



Ratelsoft Nigeria Limited registered in Nigeria. **Ratelsoft Inc.** registered in Canada and other countries.

examina.io is the online version of SmartExaminer.

SmartExaminer is a 5-in-1 Computer-Based Testing software solution, suitable for all schools, training centres and organizations.

All Rights reserved. © Copyright Ratelsoft.