AUTOMATED E-PROCTORING GUIDE FOR STUDENTS

Scheduling and Examination Services

Document version: 1.08
CoMaS version: 0.7.10
Document Release date 25-05-2021
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Overview

Why is academic integrity important? Academic integrity ensures fairness, and that our programs and degrees have value. If we were on campus, you would sit in the exam room, proctors would check your campus card, and you would sign on the designated signing sheet for your course. You would put your hand up if you had a question or needed to use the washroom. We need to translate these activities to the digital world. Please know that we are here to support you through this new process and answer any questions you might have about how the solution works. Our goal, from the beginning, was to provide flexible, modular solutions, and in doing this, we elected to use in-house applications to provide us with the ability to customize and incorporate feedback. This guide will outline the CoMaS platform, our automated proctoring solution.

The e-Proctoring application, CoMaS, ensures that only the approved examination materials are being used during the exam and that the normal rules during exams continue to be observed, such as not communicating with other people. You can find more details about what information is gathered in the “How CoMaS works” section.

Please review this document and follow the instructions to install CoMaS. Before the exam day, you will receive an email giving you all the information you need to install and sign into CoMaS. An activity will be created for your exam, and it will be available from the time you receive this email until the end of the exam.

It is critical to install and test the CoMaS application well in advance (at least three workdays) to leave enough time for troubleshooting, which can be time-consuming. The goal is to make sure everything is functioning as expected on the day of the exam. If you encounter any technical issues or have any questions regarding this application or process, please submit an exam support ticket for e-Proctoring by clicking on the following link: https://carleton.ca/ses/help (please mention your course, operating system and version and include screenshots of the error if applicable). If you have any general questions or concerns about the e-proctoring of your exam, please contact your instructor.
Requirements

Hardware & Software Requirements:

- A computer running one of these operating systems (Tablets including Arm-based Microsoft Surface are not supported as of now.)
  - Windows 10
  - macOS 10.14+
  - Linux Ubuntu 18.04
- Permission and access to download and install the application on your computer
- Link to download the application and passcode to login (which will be sent to you by the e-Proctoring team only through onlineexams@cunet.carleton.ca)
- Internet connection
- Webcam (if that is a requirement for your course), the webcam image should be visible on the screen during the exam and not obscured by any other windows.
- An up-to-date version of a browser. Chrome, Firefox, and Safari, and Edge are supported.
- Computer should be kept awake for the whole duration of the exam (please change settings to prevent going to sleep or enabling a screensaver).
- On Mac computers permission should be granted to OS to share screen with Comas.

Examination Requirements:

- Taskbar in Window or Dock in macOS should be visible and not hidden
- At the time of exam, you must have a **2Gb of storage space** on your computer (C drive in case of windows). Sufficient space is required to ensure CoMaS can generate and save local copies of your screenshots throughout the exam.
- If you are using multiple computers, you must use Comas on all of them. It would be enough to have Webcam operate on one computer only (out of your multiple computers)
- All unnecessary and unauthorized document, applications, webpages should be closed.

Technical issues:

If you encounter an issue while downloading or installing the application, or making the webcam work, you can get assistance by submitting an exam support ticket for e-Proctoring via [https://carleton.ca/ses/help](https://carleton.ca/ses/help) *(please mention your course, operating system and version and include screenshots of the error)*. We will try our best to solve the technical issues in a timely manner.

However, if our best efforts do not solve the problem in time and your exam is about to begin, try to run CoMaS independently as best as you can. Take snapshots of any error messages or the application status. Please proceed with writing your exam. After the exam, submit an exam support ticket for e-Proctoring using the link mentioned above and send your screenshots. We will inform your course instructor about the technical issue that you reported and the history of the technical support request accordingly.

For some courses, the camera may be a compulsory component for e-Proctoring. If you do not have a webcam or after contacting us, we cannot solve the technical issue relating to your camera. Your course
instructor may be able to provide alternative exam procedures for you – please contact your course instructor to discuss an alternate approach.
How does CoMaS work?

After you receive the invitation email to try CoMaS, click on the link to download the application and install it using the instructions provided. It is important to note that CoMaS will not gather any information or perform any tasks while you are not running the application. It is critical that you install and login CoMaS at least three days before the exam to test how it works and make sure everything is working properly. After logging in, you will see a message asking your permission to share your screen and camera feed. After that, it will go through some steps to setup the environment and when the status turns into “Logged in”, it is an indicator that the software is ready to run. At this time, CoMaS would start taking screenshots. Then an html page would open in your browser which allows you to start your camera feed yourself whenever you are ready to enable the application to capture your webcam image. CoMaS automatically stores the data it gathers in the CoMaS folder on your computer Desktop and sends them to the server. Running CoMaS has no effect on how your computer works so you can write the exam exactly the way you would without it. Typically, you will write your exam through Brightspace.

After the exam is finished, you should close the application and the camera page, and it will stop recording information. You can simply uninstall it after the exam and remove the whole CoMaS folder on your Desktop if you wish to.

What information does CoMaS gather?

CoMaS works only after you run the application and it is successfully logged in. While running, CoMaS does these tasks:

- It randomly takes screenshots and transmits them securely to the server. It also stores this information locally on your computer in the CoMaS folder for your information.
- It records if a snapshot or file, inside the CoMaS folder, has been deleted or modified (this is forbidden to do while the application is running at the exam time. But after the exam, you can delete the whole CoMaS folder and uninstall the application if you like).
  - A note here is that if it stops working during the exam and you need to run it again, it is fine to allow it to replace the folder and its content.
- It will record if you lose your Internet connectivity.
- If you have a document open or modify a document (pdf, doc, docx, txt, xls, xlsx, ppt, pptx, py, java, html, htm) while running CoMaS, it will record the name and path of that document and name of the application that opened or modified it. It will not look at the content of any file including the open ones.
  - Please remember that you are not allowed to open any documents except for those authorized by your course instructor.
- It does not look at any files on your computer that is not open.
- It does not record or look inside any of your files and documents (except for the files inside the CoMaS folder which are generated on the desktop each time you log in).
- It does not record any information from your browser history, cache, or cookies.
- It does not look at network traffic and does not probe devices with which you communicate.
• It does not record what applications you have installed, it records if an application modifies a document or if the application is visible on the screen, but without recording the content of any files.

If you lose connectivity, CoMaS will still work in the background generating logs and screenshots until you close it. When the internet connection resumes, if CoMaS is still running, it will re-establish connection and send all the information it gathered while it was working.

What happens after the exam?
When the exam is finished, all the screenshots and webcam shots are put together on the Carleton-based secured server to create a video file. This video file in addition to the activity logs are then examined by authorized Scheduling and Examination Services staff. SES staff will also combine any exam support tickets or communications received by the student to provide a complete picture of the session to the course instructor. In summary, SES provides a report of all the data points to the course instructor, which includes: sign-in and sign-out time, open documents, if other webpages are open (from the screenshots), loss of connectivity, whether a student attempted a test-run or not successfully, if the webcam was used or worked at all, if a phone was used during the exam (from the camera feed), and lastly, if there was any technical difficulty regarding CoMaS or Brightspace.
Installing CoMaS on Windows PC

1. Download CoMaS using the link that is sent to you by email. Make sure the email is from onlineexams@cunet.carleton.ca
2. Locate the downloaded file on your device, double-click on it to run.
3. You may receive a warning like the one below alerting that the publisher is unknown (An author signature is going to be available soon for this software so you won’t see this message anymore, please stay tuned). For now, please click on More info to see the Run anyway option and choose it.

4. Allow the User Account Control pop-up to install the application.

5. A window will open. Run the configurations and close. After installation is complete, you can see the CoMaS icon on your desktop.
Installing CoMaS on macOS

1. Download CoMaS using the link that is sent to you by email.
2. Locate the downloaded .pkg file on your device and double-click on it to run.
3. You may receive a warning like the one below alerting that the publisher is unknown. Click on Open to Run anyway.

4. If the system refuses to run the installer by giving you below message:

   go to System Preferences → Security & Privacy → General and click on Open Anyway.

5. The below dialogue will pop up. Please click on Install.
6. Select disk with at least 2GB free space.

7. Complete the installation:
Running CoMaS on macOS and Windows

1. A few days before the exam, an email will be sent to you that contains all the information you need to install and log into a CoMaS session.
2. Open the email with CoMaS login information. It will contain these items:
   - Link to download the software
   - Instructions
   - Server name:
   - Student Name:
   - ID:
   - Course:
   - passcode = CASE SENSITIVE
3. **It is critical to test CoMaS as soon as you receive this email to make sure everything is functioning correctly.** After you receive the e-Proctoring Invitation email that contains all the login information, you can test it before the exam starts by following the steps shown here. You can use the same information to log into CoMaS at the day of the exam.
4. **If you have any technical problems, submit an exam support ticket for e-proctoring via https://carleton.ca/ses/help (please mention your course, operating system and version and include screenshots of the error).**
5. This is how to locate the app. On MacOS: use spotlight to search for CoMaS or run /Applications/CoMaS. On Windows: use Windows key to search for CoMaS or use the shortcut that is generated on the desktop with the orange icon.
6. **The first time you run CoMaS, it might take a couple of minutes to show up, so please give it time and avoid running it multiple times.**
7. Make sure you are not running an instance of CoMaS already. Do this by checking Task Manager.
8. The first time you run CoMaS (most likely on a Mac system) you may be asked to provide certain permissions.
   
   a. If asked to allow CoMaS notifications, press **Allow**
   b. If asked to allow CoMaS to access your Desktop folder, press **OK**
   c. If asked, "Do you want the application to accept incoming connections", press **Allow**
   d. If asked, CoMaS would like to record this computer’s screen, press **Open System Preferences** then check **CoMaS**, press **Quit**
   e. If asked, CoMaS would like to access the camera, press **OK**
9. If you receive a message from Windows Security Defender regarding running Java, allow access.
10. Run the application. Choose the server name from dropdown list, e.g. `comas.cogerent.com` (that is indicated in your invitation email).

11. If the Course choice dialog appears, choose your course name from the menu. Otherwise go to step 8.

12. Fill in your student information (make sure to use the exact name that was sent to you by email), leave the Status empty and click on Start.
13. If the Activity choice dialog appears, Choose the activity for your exam e.g. Test-Sep-28th.

14. If you had ran this test before, it would ask you to replace the files in CoMaS folder, you can approve this message.

15. Enter the passcode from the email and click OK:

16. The status will gradually change from level 1 to 20 while CoMaS is preparing to run.

17. If you had logged into this session before, for example to do a dry-run test, it might ask you if you want the folder to be rewritten. It is necessary to say Yes to that question which will remove the content of this folder.

18. If you make an error in inputting any of this information, you might receive this message:

And if the passcode is wrong, it will bring up the passcode dialog again. Please carefully double-check that you have input the exact first/last name and the correct ID that were sent to you in the email. Also check that you have selected the correct course and activity and use the correct passcode with no space afterwards.

19. Read the User Agreement and if you do agree click on Yes to authorize CoMaS to share your information. Even if you do not have a webcam, you can click on Yes and continue without a
webcam. This message will close after a couple of minutes. If you do not answer to it, CoMaS will terminate.

20. When the status changes to **Logged in**, it means that CoMaS is setup properly and is working in the background.

21. In MacOS, you need to allow CoMaS access to screen recording to share your screen. You can do this in your **System Preferences > Security & Privacy > Privacy > Screen Recording**. Check the option for CoMaS, check it. If it is already checked, uncheck, and check it again.
22. CoMaS will open a Webcam.html page in your default browser and this gives you control over when to start your webcam feed. This might take a couple of minutes. When this page is open, click on the **Open Webcam** button to activate webcam. A new browser tab will open that contains your webcam feed. Based on your browser’s settings it might ask you to Allow using Camera. If you didn’t see any permission request from your browser or you cannot see your webcam image go to the browser settings and allow camera or change the settings to always ask you for permission (change permissions for Camera on **Chrome**, **Safari**, **Firefox**, and **Edge**).

![Open Webcam button](image)

test/75-testing
ario rofan

23. Please Note that Webcam images are not captured automatically by Comas. **The webcam image should be visible all the time during the exam for Comas to capture it as part of the screenshots.** An easy way to keep the image on top of all windows is to use the picture-in-picture feature (PIP) in browsers. On Chrome, Edge, and Safari you can click on the button located right on top of the webcam image to use this feature. In Chrome and Edge, you can move the webcam image around on your screen. Firefox does not support PIP, so if you have to use Firefox, just make sure you place the webcam image window in a way that it would not be blocked by other windows during the exam.
24. Please try to position your webcam in a way that your face is completely visible if that is possible. If you have a detachable camera, place it in a way (on the side of the table) that your desktop, face, and part of the screen is visible.

25. **It is highly recommended to check if the screenshots are being taken properly.**

   Screenshots are saved on a folder on your Desktop
   “Desktop/Comas/(examname)/(Activityname)/Screens/...”.

   a. On Mac computers, in case you can only see the CoMaS application in the screenshots and nothing else is being captured, go to Security>Security & Privacy>Privacy then Select “Screen Recording”. If unchecked, check it. If it is checked, uncheck it, and then check it again.

26. You can now start writing your exam.

27. After you submit your exam, you should sign out of CoMaS. To do this, you just need to close the application window and the webcam page. Note that it will take a couple of minutes before the application ends; please be patient. When the application has closed, no further information will be captured from your device and you can even uninstall the software if you like until the next exam.
Running CoMaS on Linux

1. Download CoMaS using the link that is sent to you by email.
2. Open a terminal window.
3. Type "cd ~/Downloads (or anywhere you downloaded the file) to navigate
4. Type java -jar CoMaS-#.#.#.jar (or the name of the file you downloaded)
Things to not do during the exam

When the exam starts, your computer and your workspace will be considered an exam environment, like the face-to-face examinations.

- Do not open or leave open any applications, documents, and webpages that are not allowed to be used or not necessary for writing the exam. Make sure you close all of them when you start to write your exam (even if they are not relevant to the course material). This includes messaging and email applications. It is important to turn off any pop-up notifications as well.
- Do not use your phone or any other electronic devices such as headphones, unless allowed or required by your course instructor.
- Do not change or delete any files inside the CoMaS folder on your desktop. One note is that if CoMaS crashes during the exam and you must run it again, it is ok to accept the request to overwrite the files.
- Do not close the CoMaS application until the exam has been submitted.
- If you notice CoMaS has crashed or closed by itself, start CoMaS again and it is ok to accept the request to overwrite the files. If you notice only at the end of your exam that CoMaS had stopped working, let us know by submitting an exam support ticket request via https://carleton.ca/ses/help (please mention your course, operating system and version and include screenshots of the error). We will pass this information on to your course instructor.
- CoMaS will continue working even if your internet is disconnected, so do not close the application if you experience a disconnection. It will re-establish connection as soon as the internet connection is back.
- Do not communicate with anyone during the exam, either in-person or digitally.
Going for a Break

During the exam you may be required to leave the examination space; for a washroom break, academic requirement, PMC accommodation or personal emergency. You do not have to message a proctor when you wish to go on a break, CoMaS allows you to self-declare a break via the web interface. Here are the steps you need to take:

- Go to the webcam tab which opens at the launch of CoMaS. Select the break that best describes your situation by clicking the corresponding checkbox. Alternatively, if none of the default breaks are appropriate you may write a brief description in the blank text fields provided and check the corresponding checkbox.

- After you have selected or typed in the reason for your break, please click OK to the pop-alert. Please make sure that you uncheck the checkbox when you return to ensure your break duration is accurately reflected in the CoMaS report.
Troubleshooting

General issues running or installing Comas

Do these in order

1- Check your credentials and use the exact ones sent to you in the email
2- End all the Comas instances running using task manager
3- Delete Comas folder on the desktop and run again
4- if the issue persists, uninstall the application, and install it again following the instructions on this guide
5- Contact us for help and troubleshooting [https://carleton.ca/ses/help](https://carleton.ca/ses/help), mention your course, operating system and snapshots of the issue

What happens if my technical issue is not fixed in time?

We will do our very best to resolve any issues that are brought to our attention, and in most cases, these are solved. As there are many operating systems and potential configurations, sometimes we might not be able to solve these in time. Therefore, it is critical to download CoMaS at least three days well in advance of your exam, to leave ample time to rectify any issues.

If our best efforts do not solve the problem in time and your exam is about to begin, try to run CoMaS independently as best as you can. Take snapshots of the error messages or the application. Please proceed with writing your exam. After the exam, submit an exam support ticket for e-Proctoring via [https://carleton.ca/ses/help](https://carleton.ca/ses/help) ([please mention your course, operating system and version and include screenshots of the error](https://carleton.ca/ses/help)). We will inform your course instructor about the technical issue that you reported and the history of the technical support request. We advise you to also notify your course instructor, with the details of the encountered issue.

My screenshots do not capture the screen properly on a Mac computer.

On Mac computers, if you can not see the screenshots or you only see the CoMaS application in the screenshots and nothing else is captured, go to Security>Security & Privacy>Privacy then Select “Screen Recording”. If unchecked, check it. If it is checked, uncheck it and then check it again.

My webcam is not working when I click on start webcam.

Go to your browser settings and permit CoMaS server to access Camera. To see how to change permissions for Camera on Chrome or Safari, Firefox, and Edge visit the links. No other application should be using the webcam, or it can’t access the device.

The webcam page did not open or was closed. How can I open it again?
This page is called Webcam.html and is in the CoMaS folder on your Desktop. It might take a few minutes before CoMaS generates and puts this file inside the Desktop/Comas/(exam_name)/(Activity name)/tools folder and open the webcam.html for you. If your browser is not set as default application to open html files then it might not open or might be open by another application, so you would need to open it yourself by going to this location and open webcam.html with the supported browser.

**Cannot install CoMaS, run the downloaded CoMaS installation package?**

This might be a compatibility case for Windows users.

Solution one:

Search for CoMaS in Windows search, right-click and choose open file location, right-click and choose to **Run as administrator**

Solution Two:

Search for CoMaS in Windows search, right-click and choose open file location, right-click on the file choose **Troubleshoot compatibility**; a pop-up window will appear. When the compatibility troubleshooter is done determining the issue or best settings to run CoMaS, the below window will appear. Please, select **Test the program** to install the application:

![Program Compatibility Troubleshooter](image)

Continue the installation based on the instructions.

**When running the application, CoMaS reports it cannot access files and closes.**

CoMaS must replace the files inside the CoMaS folder each time you run it. If any of the files or folder are in use or CoMaS is restricted to access that folder, it cannot run. So, if this issue happens for you, make sure you delete this folder before running the application. If you cannot, check Task Manager to see if any instances of CoMaS are running and using files in this folder.

**When running the application, CoMaS says it cannot find a Java file**
Check the CoMaS folder and look for a file with java extension like CoMaS-x.x.x.jar, it should be about 13MB of size, if not delete it and run CoMaS again, if it still can’t download this file completely, contact us and we work to resolve this issue.
FAQ
An updated version of this document and FAQ in addition to some more detailed privacy related FAQs is now accessible here.

Is a webcam mandatory?
For some courses, it will be required. If you cannot use a webcam, CoMaS will still run. Please discuss your webcam not running with your course instructor, preferably well before your exam.

How is my information transferred and stored?
All the information captured will be saved on your computer inside the CoMaS folder. It will be sent securely to a server located at Carleton University. The transmission and storage of information follows Carleton’s privacy and security policies.

Can I see the screenshots and webcam shots and other information gathered?
Yes, they are saved in the CoMaS folder on your desktop. There is a folder for each exam and test activity you do. There is a folder inside each activity called Screens that stores the screenshots and webcams shots and another one called Logs that keeps the log reports. Please remember that you should not delete or move these files while the exam is in progress. You can delete them after the exam is done.

What if CoMaS crashes or stops working during the e-Proctoring session?
Run the application again as soon as you know it has crashed. If it asks to replace the folder, click on Yes and continue. However, if it does not work despite your best efforts, leave it and attend to your exam. After the exam is over, submit an exam Support ticket here at https://carleton.ca/ses/help (please specify your course, operating system and version and include screenshots of the error) to let us know what happened. We will include your explanations in the report we provide to your course instructor.

I have lost my Internet connection during my exam. Do I need to run CoMaS again when my connection recovers?
CoMaS continues to gather information even without an Internet connection, so you should not close the application during the exam. When the connection is established again, it will send all the gathered information to the server automatically.

Who can I contact if there is a problem setting up CoMaS?
If you encounter any technical issues, please submit an exam support ticket for e-Proctoring via https://carleton.ca/ses/help (please specify your course, operating system and version and include screenshots of the error).

How do I use my computer for both writing the exam and e-Proctoring with CoMaS?
CoMaS will be running in the background so after logging in. You do not need to take any further actions and can start your exam in Brightspace.
What if I have privacy concerns regarding sharing my webcam or screen?

CoMaS has been vetted by Carleton’s Information Security and Privacy Offices. However, if you are still concerned, we would be happy to answer any specific questions or concerns you might have about the application. If still you have concerns, please ask your course instructor, well before your exam, whether alternative modes of assessment are available to you.

I do not have Internet. Can I use my cell phone as a hotspot?

This strategy is fine, and you do not need to turn off your cell phone even if it is not used for e-Proctoring. Leave it in plain view. Please let your instructor know that you are using your phone as a hotspot.

Is there an ideal location to take the exam? What if I have a roommate?

Use a place with good Internet connectivity, low noise, and good lighting. Ensure there is no one around you. Keep your phone off for the entire duration of the exam unless you use it for an Internet hotspot. If you have a roommate who is taking the same exam, please find a different location to write your exam.

My relatives/housemate entered my room while I was writing my exam.

If your household member walks into the room during the assessment with an unrelated exam question, politely remind them you are taking an exam, and you cannot talk until the exam is completed.

My course instructor asked us to download the questions from Brightspace, would there be a problem if I open this document?

No, if any documents or online resources are made available to you by your course instructor, then it will not be reported as unauthorized material. Always remember to close all the unnecessary and unauthorized documents, webpages, and applications that you don’t absolutely need to write the exam, if you are in doubt if anything would be allowed, please ask your instructor about it.

When I enter my password, it asks me again for password

This is because the password is wrong, make sure you copy paste the password sent to you from the email. It is case sensitive and should not have any space at the end.
Contact and assistance

For troubleshooting installation and running CoMaS before/during exam
Submit an exam support ticket for e-Proctoring: https://carleton.ca/ses/help. Please include your course, operating system (including version), and attach screenshots of the error.

For any urgent issue during the exam
Exam-related emergency toll-free call line: 1-877-557-2930 (Canada & USA).
Exam Support: Monday-Friday 8:30am-10:00pm (Eastern Time).

For non-urgent exam related issues
Submit an exam support related issues: https://carleton.ca/ses/help.
Email: OnlineExams@carleton.ca.
Non-emergency phone call: 613-520-2600 x1571 M-F, 8:30am-4:30pm (Eastern Time).