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SIGMA TRUST



CodingSTEAM

Guidance for Chrome Schools delivering GCSE (9-1) Computer Science Paper 2 (1CP2/02)

Welcome to the updated Exam ChromeOS Admin Guide, originally developed in collaboration with Sarah Witcher, part of the Sigma Trust. This revised document extends the foundational work by integrating the Replit Exam Lock extension developed by Amaya Herranz Donnan and Nico Walters at CodingSTEAM, enhancing existing protocols to block AI functionalities and other unnecessary tools during GCSE Computer Science exams.

This guide provides comprehensive instructions for educational institutions on setting up and deploying ChromeOS devices in a controlled exam environment, ensuring that students are focused solely on their examination tasks.

Schools that use Chromebooks as their primary computer for delivery of teaching and learning, as well as for assessment can refer to this approach when determining how to deliver Paper 2 to their candidates.

If there are any questions related to the delivery of our Paper 2 assessment, please do not hesitate to contact our Subject Advisor, Tim Brady by email on TeachingComputerScience@pearson.com

Exam ChromeOS Admin Guide (Replit)

This guide will explain how to set up ChromeOS devices for exams, using Replit Teams for Education. Which is now available free of charge for all educational institutions and will allow any projects created to be private.

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Managed ChromeOS Built-in Capabilities

The managed ChromeOS platform provides a number of capabilities for controlling user activity on the device. Primarily these are:

URL Blacklisting and Whitelisting

This allows admins to prevent users from navigating to any web page, with specific overrides if required.

Chrome extensions

These allow almost infinite capabilities and can be force-installed on managed ChromeOS devices.

Hardware control of devices

This can be used to disallow almost any hardware capability that may need to be controlled (e.g. external storage).

The G Suite Admin Console allows admins to disable features and apps for specific Organisational Units (OUs). This can be used to disallow access to many Google apps and the internet for a group of users. Using the Google admin console, ChromeOS devices can be locked down for exams.

How a managed ChromeOS device will meet exam requirements

Replit does not have controls for specific features within the site's interface. However, as Replit is a website, it is amenable to URL blacklisting and whitelisting to remove the ability to navigate away from the site to another webpage and access the help and community sections on the Replit website. Alongside the installation of the Replit Exam Lock extension, which removes elements of the website which the candidate could use to access resources which should not be available to them during the exam, will allow the ChromeOS device to meet exam requirements.

Operation of the Replit Exam Lock

[Replit Exam Lock](#)

The Replit Exam Lock is an open source extension developed by CodingSTEAM that utilizes advanced CSS (Cascading Style Sheets) techniques to enhance security during exams by selectively blocking or hiding elements of the Replit interface that are not necessary for the examination.

By applying CSS rules directly within the extension, it can effectively override the default styles of the Replit webpage. This means that any features related to AI functionalities, chat services, or other interactive tools can be visually removed or disabled from the user's view. The extension manipulates the DOM (Document Object Model) of the Replit page, targeting specific classes and IDs to hide or modify elements, ensuring that students cannot access any tools that might aid in bypassing exam protocols.

This method provides a seamless and distraction-free environment, maintaining the integrity of the examination setting while utilizing a straightforward, lightweight approach that does not compromise the performance of the web application.

Deployment of the Replit Exam Lock

The extension is available to the public and accessible from the Chrome Web Store and can be force-installed to the Exam Organisational Unit at user level through the G Suite admin console.

Google Admin Setup

Here is how we want to set up the ChromeOS Device\Users for the exam. This will not go into all security settings as it will be an add-on to the student policies that are already set on the top level Student\Device OUs.

Create 2 Exam OUs, 1 for devices and 1 for users.

You will need to create your exam Google accounts. These will be used to log on to the ChromeOS devices and will also be used to login to Replit. These accounts will be wiped after use and reused for any following exams. Create these in your newly created user OU.

Device Settings

Most of the settings will be applied at user level, but the exam ChromeOS devices will need to be locked down so the candidate cannot logon using their school account.

1. Setup up an Exam OU for the exam devices.
2. Go to Devices > Chrome > Settings > Device.
3. Select the device exam OU.
4. Apply the following settings:
 - 4.1. For User data, select 'Erase all local user data' to erase the student's data from the device when they sign out.
 - 4.2. Restrict who can sign-in to the device as only those belonging to the assessment domain. For sign-in restriction, select 'Restrict sign-in'. Enter in all exam accounts separated by a comma.

User Settings

Block all apps but those you want to allow. In this case no apps will be allowed.

1. Go to Devices > Chrome > Apps & extensions > Users & browsers > Exam users OU.
2. On the right, click Additional settings > Settings > Allow/block mode > Edit > Chrome Web Store > Block all apps, admin manages allow list > Save.

Apply security measures for users and browsers.


1. Go to Devices > Chrome > Settings > Users & browsers > Exam users OU.
2. For Incognito mode, select 'Disallow incognito mode'.
3. Consider not locking the screen when the lid is closed. Go to Security > Idle Settings > Lock Screen on Sleep.
4. For Screenshot, select 'Do not allow users to take screenshots or video recordings'.
5. For URL blocking, apply the settings below:
 - 5.1. Blocked URLs: set this to block all URLs with a wildcard*
 - 5.2. Block URL Exceptions: <https://replit.com/team/CS-EXAMS/CS01> (This will be different for each site, this URL will be available once the projects have been set up on Replit.) <https://replit.com/@CS-EXAMS/CS01> (This will be different for each site, this URL will be available once the project has been set up on Replit.)
<https://replit.com/auth>
<https://replit.com/login>
<https://accounts.google.com/o/oauth2>
6. Set the Start-Up URLs:
 - 6.1. Home Page: <https://replit.com/team/CS-EXAMS/CS01> (This will be different for each site, this URL will be available once the projects have been set up on Replit.)
 - 6.2. New Tab Page: Same as above.

- 6.3. Page to load on Start-up: Same as above.
7. For Printing, select 'Disable printing'.
8. For External storage devices, select 'Disallow external storage devices'.

Replit Setup

This section covers all steps from the beginning, including creating a Replit Account with Teams for Education. A Replit account with admin access to an Education Organisation is necessary.

Creating Account and Setting up Education Organisation



1. Setup Replit Account (This will be done with a Google account from the schools domain and will be used to create the project that will be used for the Exam). [Replit Sign Up](#), select 'Continue with Google' and follow the steps. It is suggested to create a new Google account for this, as this can then be shared with the Exam Coordinator to set up exams and download candidates completed work after the exam has been completed.
2. Once logged in, click on  and select 'Teams'.
3. Click on 'New Team in (Education Organisation Name)' and completed the required information.
4. Complete the required information to create a new team.
5. Select the newly created team.
6. Under this section you can create new projects and add new team members.

Adding exam accounts to the team

1. Select 'Manage team members'.
2. Select 'Invite team members from CSV', download the template and add in the exam accounts to be uploaded.
3. You will need to accept the invitation on each account. This will only need to be done once and accounts can be reused for new exams.

Creating a Project

A project will need to be created for each exam question. This is how the exam environment will be created.

1. Select 'Create project' > select Python as the language > name the exam > toggle 'Group Project' on > click on 'Create'.
2. Under 'Files'  > click on the 3 dots,  > select 'Upload file' > upload the seed files you have received from the exam board.
3. Select 'Publish project' > toggle 'Published' to 'On'.
4. Under 'Groups', set the 'Group Size' to 1 and 'Auto Assign' (This will add each exam

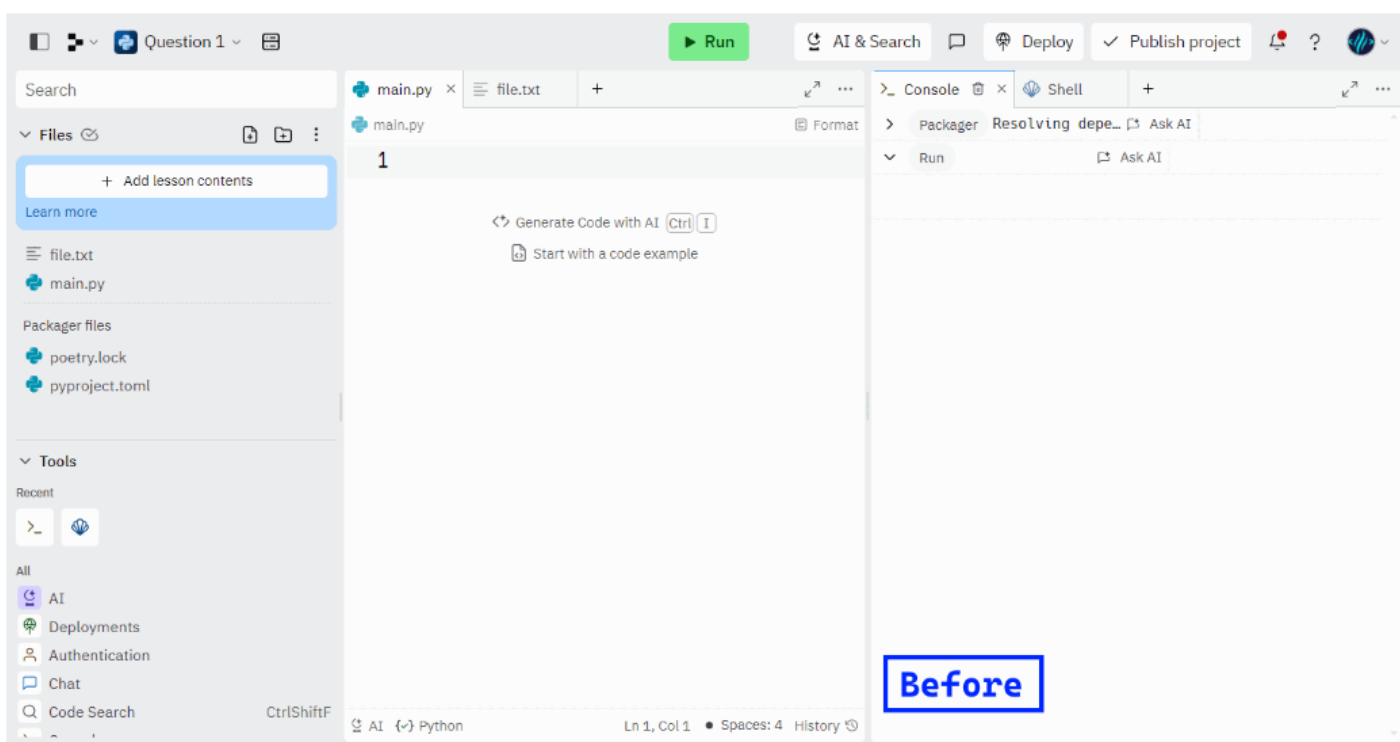
account to its own group, which will remove any collaboration between the exam accounts and will create a separate project for each user).

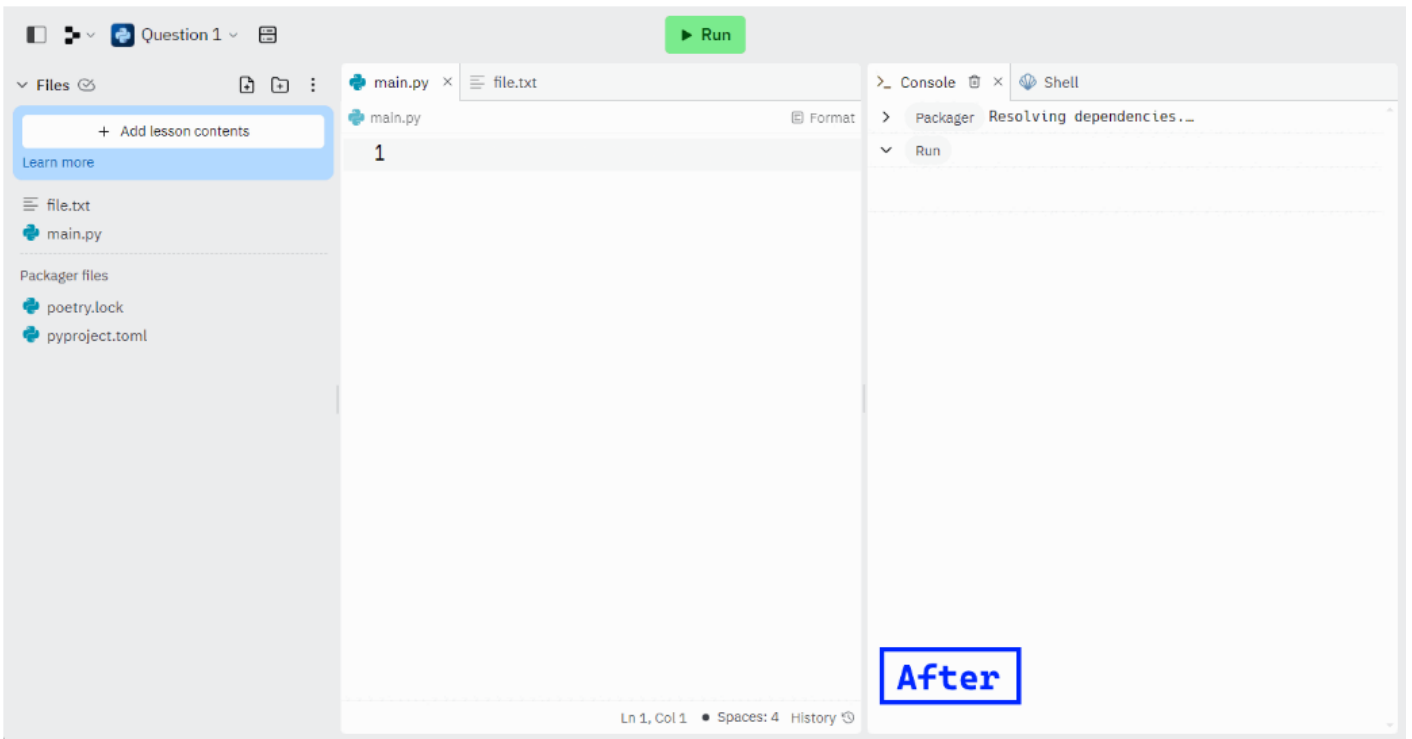
5. Click 'Save'.
6. Go back to the Teams home page > click on the name of your newly created team > click on the 3 dots next to your newly created project > click on 'Copy student project link'. This will give you the URL you need for Google Admin.
7. Repeat Steps 1 to 6 for each question in Paper 2.

Replit is now ready for the exam. The next sections will show the candidate exam view, how they submit the exam and how the Exam Coordinator will download the submissions from the Teams console to be uploaded to the exam board's portal.

Candidate Exam View

When candidates log onto the ChromeOS device with the username and password provided by the exam centre, the exam IDE with all the required files will automatically load. With the Replit Exam Lock installed and the URL block policies in place, the candidate will not be able to access other parts of the site or any other sites. If they reload the page, the extension will automatically reload. The screenshots below show the before and after installing the Replit Exam Lock extension:





With Replit, there is only the ability to run code within the main.py file. Having each Paper 2 question as a Project on Replit allows the candidate to run the file to check for errors or if the code has been completed successfully using the green Run button at the top of the page. Once the candidate has completed and checked the code in each file, they can then click on 'Submit' to complete the exam.



Downloading Candidate Exam Files

Once all candidates have submitted their completed test files, the Exam Coordinator will be able to download the files using the following steps:

1. Login, click on ☰ and select 'Teams'.
2. Click on the name of the team to open it.





3. Select 'View Submission' for each Project / Exam Question.

TITLE	DUE DATE	SUBMISSIONS	PUBLISHED
 CS01 Computer Science Exam 06/05/22	–	View submissions 0 of 2 submitted	<input checked="" type="checkbox"/> 

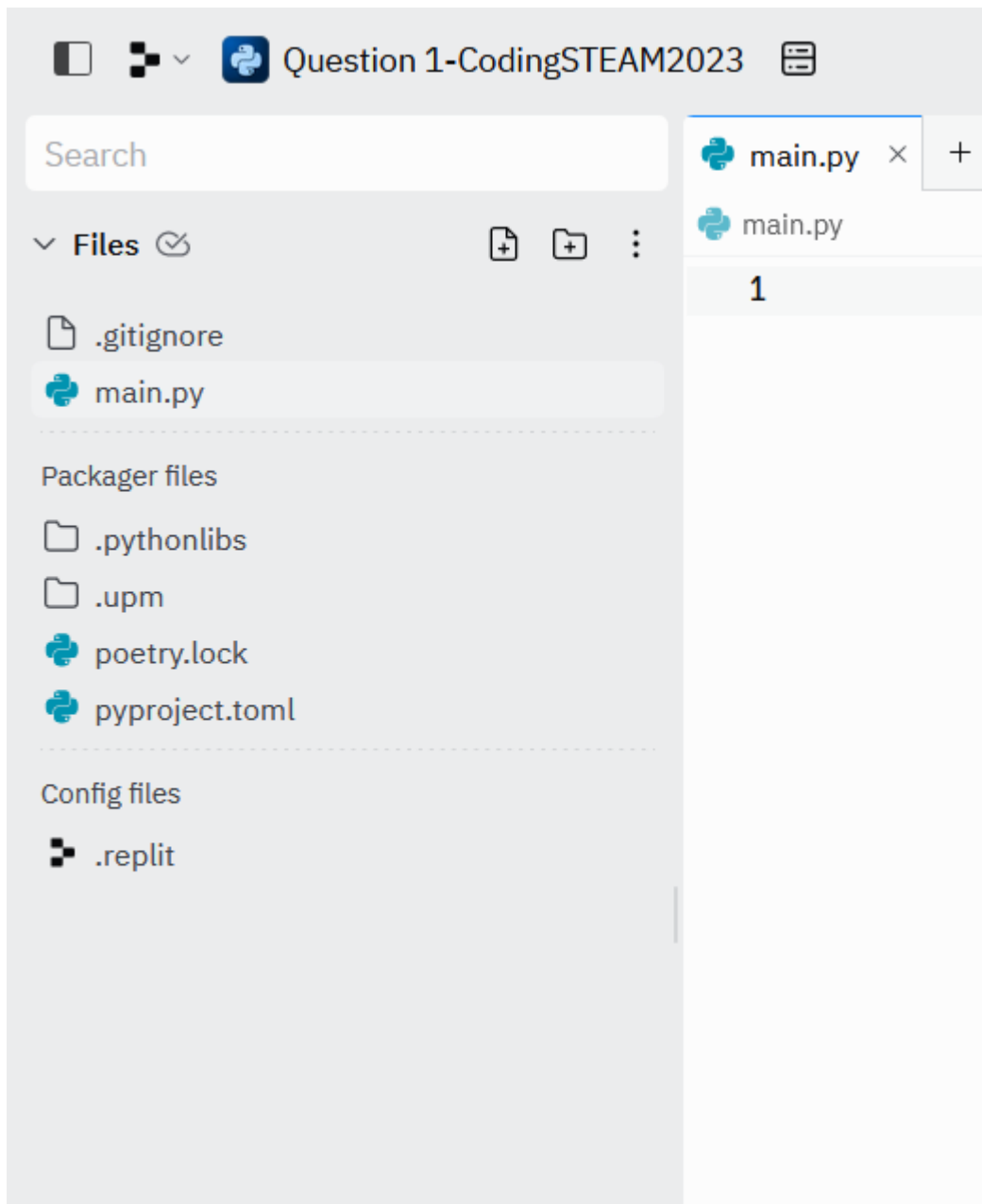
4. This will show all the candidates.

Authors	Started date	Submitted date	Last Reviewed	Actions
 Onscreen Exam onscreent@hdhs.school	5/6/2022 1:21 PM	–	–	View Repl 
 Onscreen Test onscreent2@hdhs.school	5/6/2022 1:21 PM	5/6/2022 3:07 PM	–	View Repl 

5. Click on 'View Repl'. This will open the candidate's Repl.
6. Click on 'Files'  > click on the 3 dots  select 'Download as ZIP'.
7. Rename the ZIP files with the candidate name and centre number.
8. Repeat steps for each candidate.
9. Once all files have been downloaded, they can now be uploaded to the exam board's portal.

Student Print Out for Exam

1. Login with exam account provided.
2. Select 'Continue with Google'.
3. Click 'Confirm' on the popup window.
4. Click 'Allow' on the popup window.
5. Inside of the Team dedicated to the exam, you will see a Replit Project per question.
6. All question files can be found on the left hand side. Ignore the Packager and Config files, including the .gitignore file.



7. To test your code during the exam: click the green Run button at the top of the web page.
8. Once you have completed the question, click on 'Submit' at the top of the screen.