



# **Examiner Manual**

**V9.0**

## **Imprint**

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# 1. Introduction

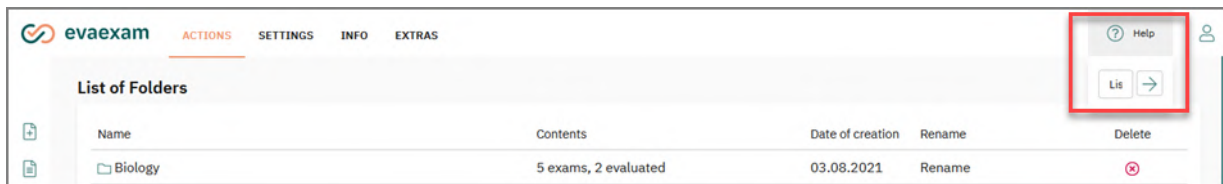
Evaexam is a software designed to create, conduct and evaluate multiple choice exams. These can be conducted either as paper-based exams or in the form of an online exam.

Evaexam has a centralized administration by which examiner accounts can be created and global system settings can be set.

Exams are created in separate examiner accounts. In the case of evaexam running as an independent software, exam accounts are created by the administrator, and access data for the system is distributed to the examiners. Within their own accounts, examiners can independently create, conduct and evaluate their own exams.

## 1.1. About this Manual

This manual describes the structure and functions of the examiner interface (creating an exam sheet, creating an exam, automatic evaluation, etc.). It can be retrieved as a PDF document in an examiner account in the section 'Information'. When clicking on the info icon in the top right corner of the evaexam screen, you can open and browse the online help.



**Figure 1: Open the online help**

For the administrator, a separate manual is available that explains the functions of the central administration interface in evaexam.

In this manual, the following labels are used:

- Menu names are in inverted commas: "Menu Name"
- Buttons are set in square brackets: [Button]
- Notes and tips are highlighted by frames and colored shading

## 1.2. Quick Overview: Creating an Exam in a Few Steps

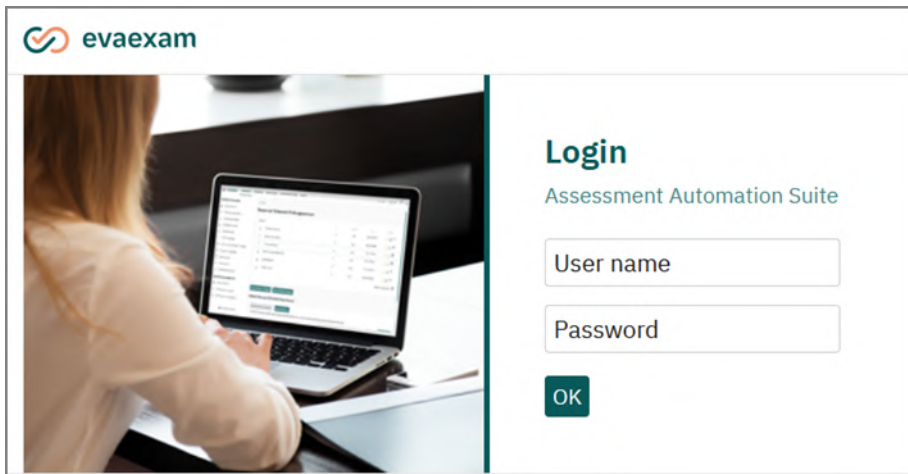
To create an exam in evaexam, the following steps are necessary:

- Create an exam sheet with the VividForms Editor, two kinds of exam sheet can be created:
  - Exam sheet with answers on the sheet
  - Exam sheet with a separate answer sheet
- Creating an Exam:
  - Select or create an exam folder
  - Create an exam via the button [Create New Exam]: Define folder, name of exam, method of capturing participants (fill out/import participants), kind of exam (paper/online), exam sheet, exam options (number of versions), number of participants.
  - Evaexam automatically generates a PDF file which contains a set of exam sheets (paper exam) or a PSWD (online exams) for each participant.
- Print the exam sheets or distribute PSWD cards
  - Conduct the exam
- Evaluate the open questions (alternatively also online after scanning)
- Scan in the paper exam sheets with the help of the evaexam Scanstation
- Verification, which means visual correction of the captured data. During this, the system presents the ambiguous capturing results of the batch which can then be confirmed or corrected.
- Retrieve the results of the exam as
  - Exam report in PDF format
  - CSV file with exam participants IDs and point values (raw data)
- Optionally, preconfigured grading scales can be assigned to the relevant exam and where necessary be adapted. The exam report then not only provides the points attained but also the grade achieved by the participant.

In the following chapters the steps mentioned here are described in greater detail. The manual orientates itself on this defined process.

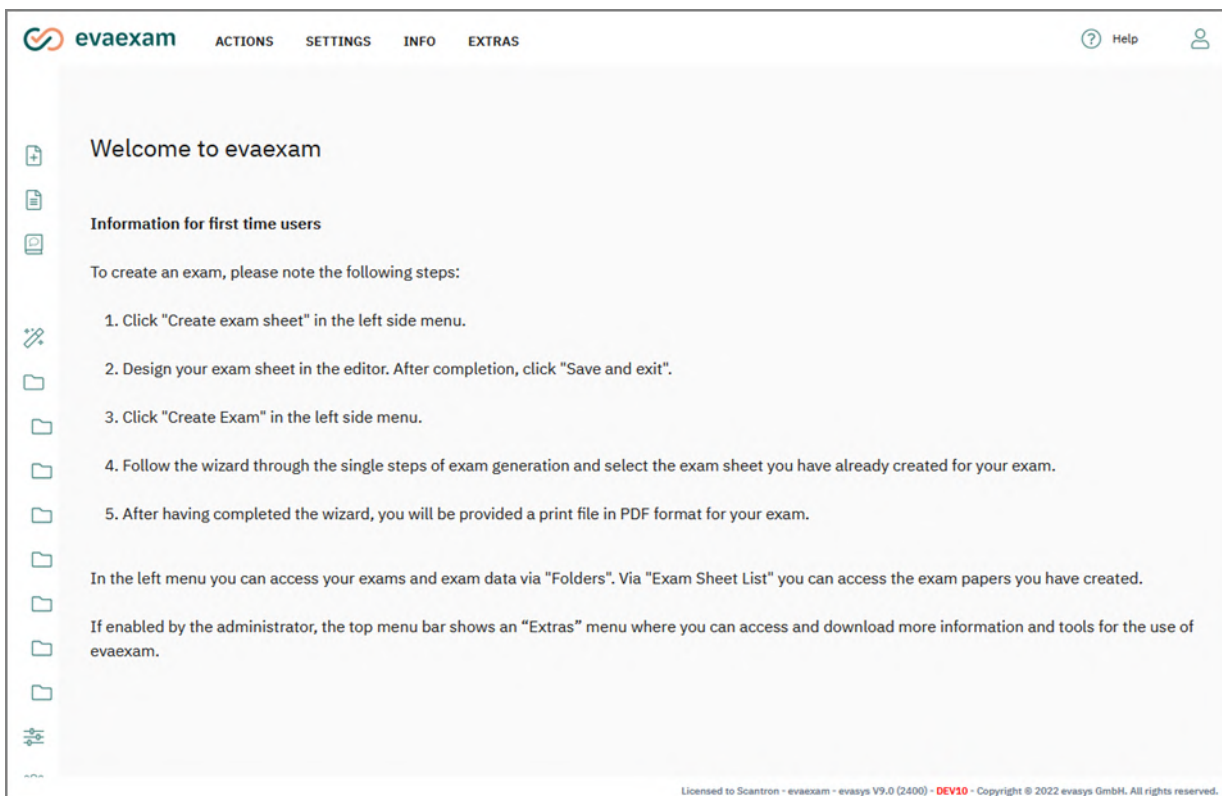
## 2. The User Account

Log into evaexam with the access data provided to you by your evaexam administrator by entering your username and password on the login screen.



**Figure 2: evaexam Login Screen**

Once you have logged into the evaexam System, you will see the Examiner Account starting page. Along the header of the page are four main menus, 'Actions', 'Settings', 'Info' and 'Extras'. The menu located on the left hand side of the screen shows the relevant options for each main menu.



**Figure 3: Menu Examiner Account**

## **Actions**

The most important of the four menus: Here you prepare and conduct your exams. You can create exam sheets, generate paper and online exams and edit them. In the exam list, the exam data can be permanently accessed.

## **Settings**

In this menu you can predefine the most important exam related settings. Furthermore, you can adapt your user profile and change your password (see below chapter 2.1. "Adapt User Profile").

## **Info**

You can view information on the system status (such as logging data of emails sent from the system) and open the evaexam Examiner Guide at hand in the section "Help". Additionally, the manual can be opened on each screen by clicking the blue [Help] button in the upper right corner.

## **Extras**

In the Extras menu you can open information and utilities for your evaexam system which are provided directly by the evasys GmbH, such as information on data security etc.

The Extras menu is updated automatically when new content is available. To have it displayed correctly, the computer you use to access evaexam must be provided with internet access. If this is not the case, a message is displayed in the menu area.

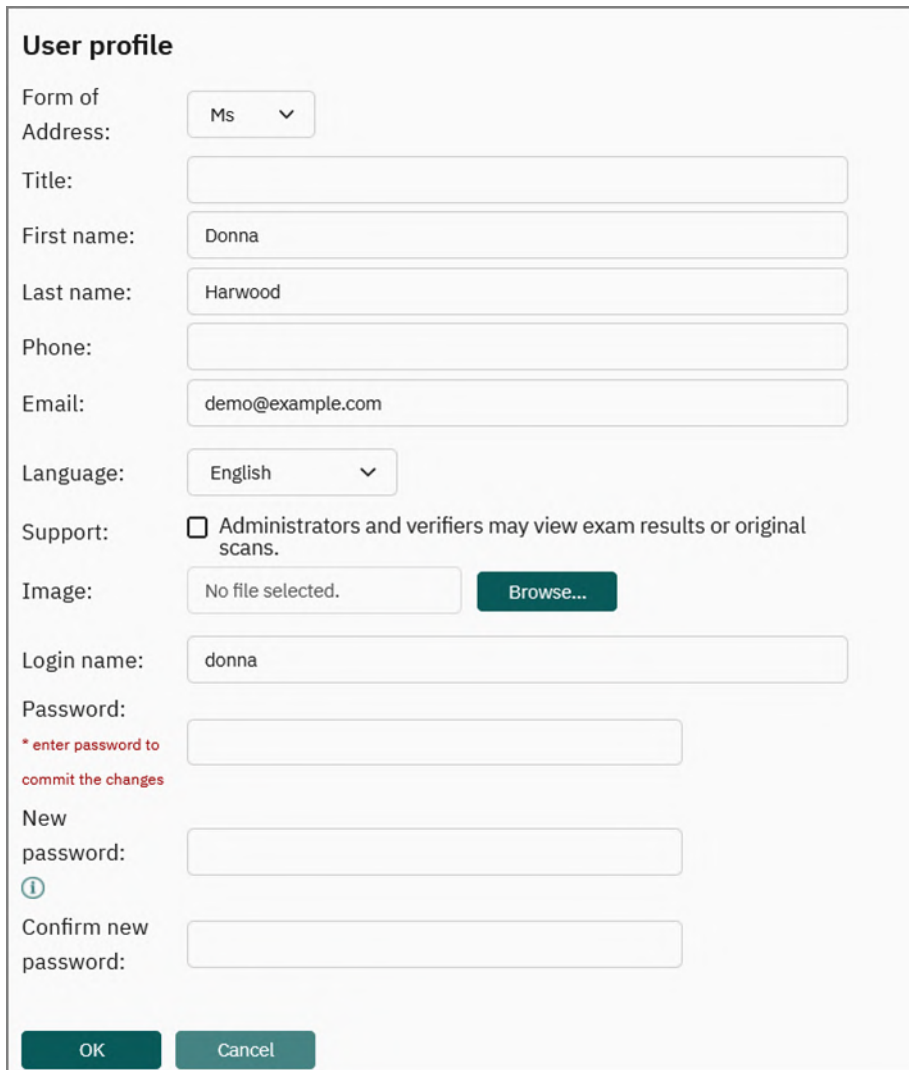
As the Extras menu is constantly updated it is worthwhile to go and take a look regularly. If there is new content available, this will be marked accordingly.

## **2.1. Adapt User Profile**

In the section "Settings", access to the own "User Profile" can be found. Here, the log in name and password can be changed, as well as some other user data. Change your user name and password directly after your first login to protect against unauthorized access to your account.

In this section, you can allow the administrator to view exam results from your exams. This option is deactivated in the default settings. With this setting deactivated, the administrator cannot access raw data, the exam report, or the original scanned pages. Neither can he do the verification for your exams, i.e. he cannot check and correct insecure readings of checkmarks. If you explicitly allow the administrator to access your data, he can access your data via the administrator account and support you where necessary. Of course you can detract this right from him at any time.

Even if you do not define a new password, after any changes please always confirm your entries by entering your current password in the section "Old Password".



The form is titled "User profile" and contains the following fields and controls:

- Form of Address:** A dropdown menu with "Ms" selected.
- Title:** An empty text input field.
- First name:** A text input field containing "Donna".
- Last name:** A text input field containing "Harwood".
- Phone:** An empty text input field.
- Email:** A text input field containing "demo@example.com".
- Language:** A dropdown menu with "English" selected.
- Support:** A checkbox labeled "Administrators and verifiers may view exam results or original scans." which is currently unchecked.
- Image:** A text input field showing "No file selected." next to a green "Browse..." button.
- Login name:** A text input field containing "donna".
- Password:** A text input field with a red asterisk and the text "\* enter password to commit the changes" below it.
- New password:** A text input field with a blue information icon (i) to its left.
- Confirm new password:** A text input field.
- Buttons:** At the bottom, there are two green buttons: "OK" and "Cancel".

**Figure 4: Adapt Profile**

If the administrator has activated the function, you can furthermore upload and manage a profile image in your user settings. If the administrator has already uploaded an image it will be shown here. If no image has yet been uploaded, you can do this yourself. The file format has to be jpg or png and the image may not be bigger than 50 KB.

If you have uploaded a profile image it will be shown in the header of each type of online exam. Furthermore, it can be printed on the PSWD cards which can be used to distribute access data for online exams provided the administrator has set the PSWD card format accordingly.

If the administrator has activated profile images on the PSWD cards but for your account no image is stored, the default format for the PSWD cards will be used instead.

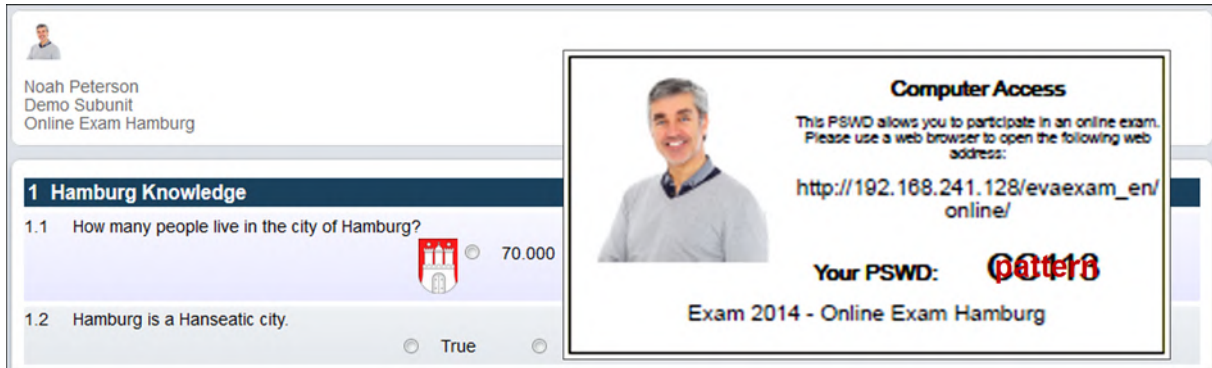


Figure 5: Profile Image in the Online Exam

## 2.2. Exam Related Presets

The central system settings are already predefined by the administrator when setting up the evaexam system. You as an examiner can check the most important exam related presets and, if necessary, adapt them to your needs. Before you start working with evaexam you should take a look at the menu “Settings/evaexam Settings”.

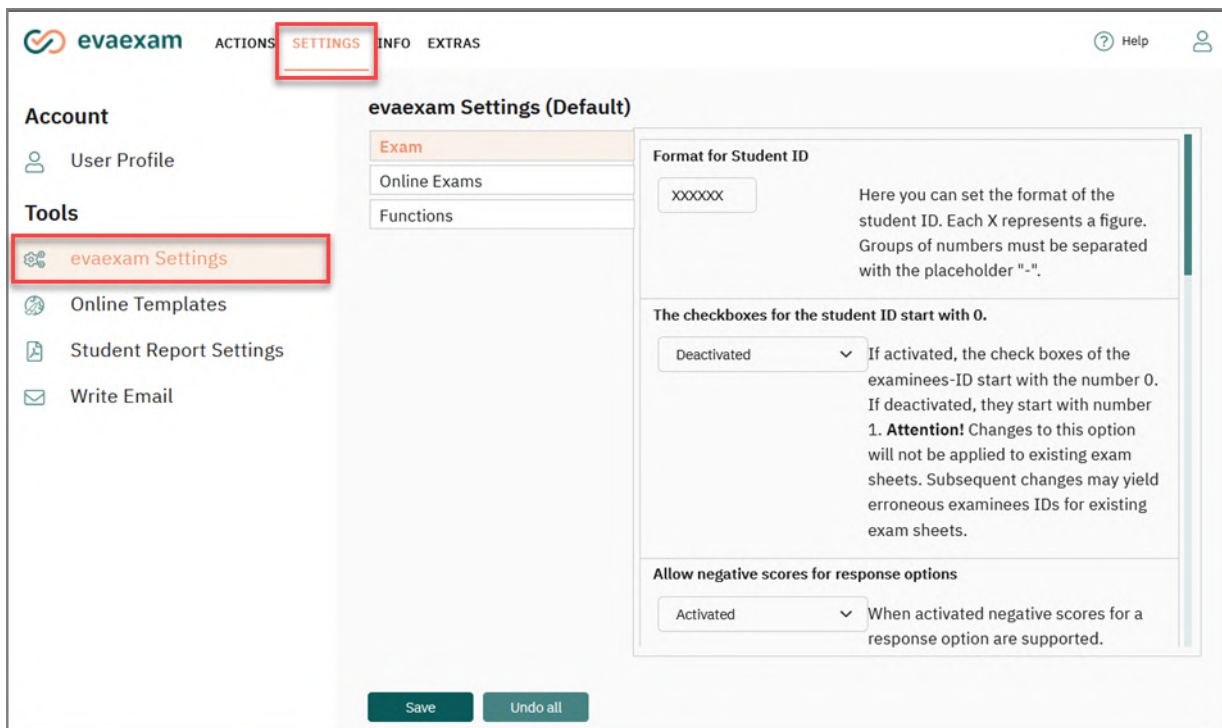


Figure 6: Presets in the evaexam Settings

In the menu “Exam” you can define the following settings:

- Format for examinee-ID

Here you can set the format of the examinee-ID. Each X represents a figure. Groups of numbers must be separated with the placeholder “-”. With the help of the examinee-ID the exam sheets are assigned to the participants. You therefore have to define the format of the student ID used by your organization here.



- The checkboxes for the examinee-ID start with 0

If activated, the check boxes of the examinees-ID start with the number 0 (see Figure 7: Settings for the ID area). If deactivated, they start with number 1.

**Note:**

Attention! Subsequent changes may yield erroneous examinees IDs for existing, not scanned exam sheets.

Please complete:

First name: \_\_\_\_\_

Last name: \_\_\_\_\_

In order for your exam to be processed correctly please make sure you enter your examinee-ID precisely into both of the fields provided for it. All pages are entirely individualized and cannot be replaced by pages of other exam sheets.

Examinee ID of the exam sheet no.: 1:

0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Format for examinee-ID →

Headline of examinee-ID

Checkboxes for examinee-ID start with 0

**Figure 7: Settings for the ID area**

- Allow negative scores for response options

When activated, negative scores for a response option are supported. This is particularly useful when you use multiple choice questions with point values for individual response options and if you want to prevent that a participant receives points by checking all options or if you want to correct high guessing probabilities.

**Note:**

If you use negative scores in an inappropriate way, this can lead to undesired and inadequate results. The usage of negative scores in exams is legally bound to strict provisions. The correct usage of negative scores is described in detail in the Guide for creating and analyzing exams with evaexam which can be downloaded in the Extras menu. Do only use negative scores if you know what you are doing.

- Correct negative results

If this function is activated, negative results to a question in evaexam are set to 0, i.e. a participant cannot obtain less than 0 points for a question. If this option is deactivated, negative points will be carried on till the final score.

- Order of versions of exam sheets in the PDF document for printing

This setting defines the order of versions of exam sheets in the PDF document for printing.

0 = ABC ABC ABC...

1 = AAA BBB CCC...

Depending on how you distribute your exam sheets you can decide which option fits best for you.

- Levels of Difficulty for Exam Questions

If this function is activated, levels of difficulty can be set for exam questions manually. In conjunction with the Question Library a pool of questions can be created, from which questions can be selected according to their assigned level of difficulty.

- Batch Size Single Student Report & Original Scans

This setting defines how many single student reports or original scans can be downloaded in one file. If the exam contains more single student reports or original scans, they will be downloaded in batches as defined here. We recommend restricting the charge size to avoid issues during download, especially when exams have a very high number of participants and/or when the exam sheets are very long.

- Download exam forms in a ZIP file

This option allows paper-based exam forms to be downloaded as separate PDF files in a ZIP archive. If the function is deactivated, the exam forms are downloaded in one PDF file.

- Font size of the version label

Use this setting to change the font size of the version label on the exam sheet. The version description in the header area of an exam sheet can therefore be displayed in a smaller format, so that it is not easily legible from a distance

You can furthermore define settings for online exams in the menu “Online Exams”:

- Temporarily save online exams automatically

This setting defines if participant entries in online exams are automatically saved temporarily and at which intervals. The intervals are specified in seconds.

**Note:**

This setting only affects exams of the type “online exam”. It does not affect online practices or online quizzes. Please also note, that frequently performed saving results in a high load on the evaexam server, especially if the participant group is large. Please ensure that your evaexam server has enough resources. For further information, please refer to the “evaexam System Requirements” document.

- Allow online exam participants to mark pages to complete later

If activated, this function allows participants of online exams to mark pages to which they want to later return, to check or supplement their answers.

For paper-based exams the following settings can be defined in the menu “Functions”:

- Adjust page number for serial printing

When activated, this function adds blank pages to an exam sheet when there are versions with different page numbers so the differing page numbers are compensated. Consequently all exam versions have the same number of pages.

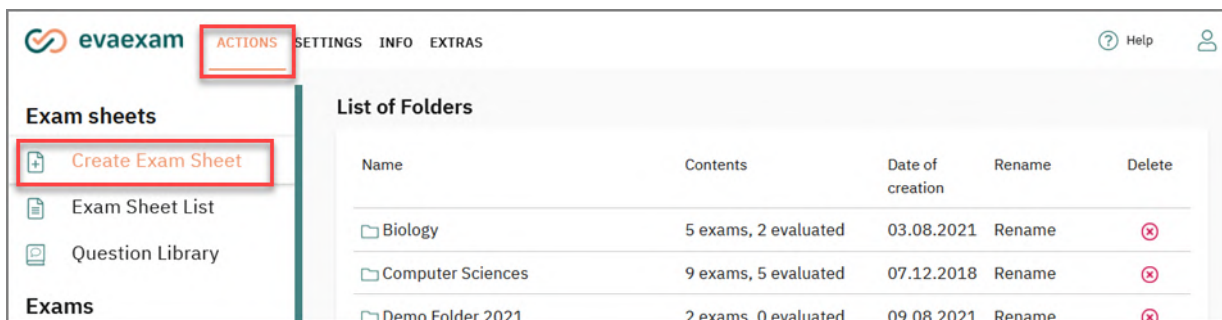
- Duplex Printing

The PDF document contains blank pages for duplex printing of exams with an odd number of pages. This ensures that every first page of a multi-page exam is always started with an new sheet of paper.

Check the settings shown above, do changes if necessary and apply your settings by clicking the button [Save]. Should you wish to revert to the administrator settings at a later time, click the button [Restore default values].

### 3. Creating an Exam Sheet

The basis of any exam is an exam sheet. To create a new exam sheet, click in “Actions” in the left side menu on the option “Create Exam Sheet”.



**Figure 8: Create Exam Sheet**

The VividForms Editor appears with an empty template in the background.

### 3.1. Define Form Information

In the window "Form Creation Information" you now need to enter the short name of the exam sheet (at least 5, maximum 25 characters, no spaces) as well as a heading. This appears later in the header of the exam sheet.

Exam Sheet Wizard

**Form creation information**

Abbreviation:

Title:

Exam type:

Paper size:

Method:

Open Questions:

Evaluation:

**Figure 9: Define Form Information**

First, determine the exam type. You can choose between the following types: "Paper and Online Exams", "Paper Exams", "Online Exams". Depending on which exam type is selected, the available settings in the editor adapt to the selection made here.

Next, select whether, in the case of paper exams, the questions and answers should be on one sheet or whether a separate answer sheet should be printed.

Furthermore, you can select how answers to open questions (these are questions where the participant enters free text) are to be evaluated:

- Evaluation on the Exam Sheet:

Above an open question on the exam sheet, there is a matrix field. Before the sheet is scanned in, the examiner must mark the sheet by making a cross at the number of points attained.

1.1 What is the "Global Indicator" about?

Only to be filled out by examiner

	10	20	30	40	50	60	70	80	90	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> + 0.5
0	1	2	3	4	5	6	7	8	9	

**Figure 10: Open Question with Matrix Field**

- Evaluate Later Online:

Above the open question there is no matrix field. After scanning, the exam shows the status “Scoring”. The examiner now needs to retrospectively evaluate the open questions online.

1.1 What is the "Global Indicator" about?

**Figure 11: Open Question without Matrix Field**

**Note:**

If the “Segmented Open Question (ICR)” is used in the exam sheet, only “Later evaluate online” is available. If this type of question is inserted in an exam sheet which is set to “Evaluate on the Exam Sheet”, a warning message will appear and the exam sheet is automatically set to “Later evaluate online”.

See chapter 3.7.7. "Segmented Open Questions (ICR)"

Lastly, select the required answering process for the exam sheet:

- Answers on the Exam Sheet

Next to each answer option on the exam sheet, a check box is displayed. The participant can place his/her answer directly onto the exam sheet by marking the relevant box. The exam sheets are then scanned in their entirety and evaluated.

2.1 Which import types are available in EvaSys?
<input type="checkbox"/> CSV-Import
<input type="checkbox"/> Doc-Import
<input type="checkbox"/> XLS-Import
<input type="checkbox"/> XML-Import

**Figure 12: Exam Sheet with Checkboxes**

- Answers on a Separate Sheet

There are no check boxes on the exam sheet. Instead, in addition to the sheet with the exam questions, an answer sheet is produced. On this sheet, the participant can collate all of his/her answers to all of the questions. After conducting the exam, only the answer sheets of the participants need to be scanned and evaluated.

1	Which statement is correct?				
	a) You can assign a course to a substitute				
	b) You can assign a survey to a substitute				
	c) You can change an instructors subunit				

Around EvaSys				
	a	b	c	d
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>		

**Figure 13: Exam Sheet with separate Answer Sheet**

**Note:**

For exam sheets with a separate answer sheet, the question type “Open Question” is not available, which means it is not possible to use free text questions.

Finally, you select the type of evaluation for exams which will be carried out with this exam sheet:

- Evaluate as single exam  
The number of raw score points earned are added together to form an overall result.
- Evaluate by subtests  
Based on question groups on your exam sheet, you can divide an overall exam into subtests. The individual parts are each evaluated separately. For detailed information, see chapter 11. “Subtesting Procedure”.

When all settings have been made, click on [Apply]. The header section of the first page of the exam sheet appears.

## 3.2. Editor Structure

The editor shows a menu bar in the header section where you can open previews of the paper and online form as well as re-edit the form information by clicking on “Form Properties”.

On the left side of the window you will find the editor control. The single menus can be opened and closed by clicking with the mouse on the menu name. With the help of the center bar you can enlarge or reduce the editor control by drawing the mouse to the left or right. On the right side the work sheet is displayed. This is where the exam questions are located. The exam sheet is not completely blank. The header of the page already contains a heading line and an ID area which is used to capture the examinee-ID.

Figure 14: Editor Structure

## Online exams, -exercises and -quizzes

To create exam sheets especially for online exams, exercises or quizzes, the display can be switched to the "online view" via the menu in the header area.

Figure 15: Exam sheet in online view

In this view, the editing of the exam sheet is done based on a simulation of the online scenarios. It should help to assess the presentation of the exam sheet in online use already at the time of its creation.

If the exam sheet is created in the online view, all options relevant for online use are available. As with the creation of the paper version, the online version also allows you to fill the exam sheet with elements by drag & drop. All desired and available elements



can be dragged from the side menu with the mouse button pressed down onto the exam sheet and placed there.

In the online view, the exam sheet is always displayed in its entirety. Display options or layout elements for paper exam sheets are not included in the online view. The online template in which the exam sheet is displayed cannot be changed for the online view.

The online preview can be used to review the different display and presentation options of the online exams, exercises or quizzes. Detailed information and the available options can be found in the following chapter.

**Tip:**

To evaluate the exam sheet in the different display formats of the online exams, exercises or quizzes, and/or with other online templates it is recommended to open the online preview of the exam sheet in another tab/window of the web browser.

### Display options of the online preview

The online preview has a number of options that allow for the most accurate and realistic representation of online exams, exercises or quizzes:

#### Online template

The online preview of the resulting exam sheet can be displayed in the design of the available online templates from evaexam. So the layout of the exam sheet can already be checked during its creation. All online templates available in evaexam are available for the online preview.

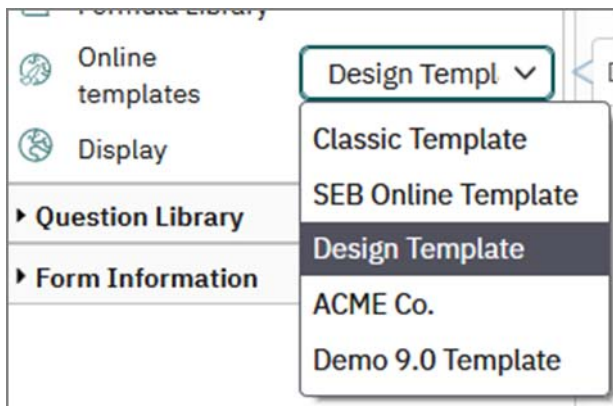
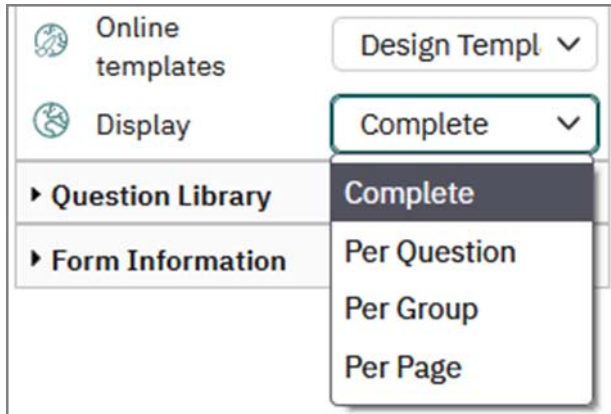


Figure 16: Onlinetemplates in the online preview

#### Presentation

The total view of all elements of the exam sheet (Complete), the presentation in single elements (Per Question), the presentation per question group (Per Chapter) and the presentation per exam sheet page (Per Page) are available for online preview.





**Figure 17: Display types of the online preview**

#### Hint:

The view options that can be set here refer exclusively to the online preview. They are intended to show as true an image as possible of the online exams, exercises or quizzes.

The options for display are applied to the online preview and are taken over when saving the exam sheet. They can be changed if required.

The selection of the online template is only applied to the online preview of the VividForms Editor. It is not saved and therefore not applied in real online exams, exercises or quizzes.

For information on creating and using online templates please refer to the evaexam user manual.

The display of the online exams, exercises or quizzes is automatically adjusted to the resolution of mobile devices. The display on mobile devices can be simulated by manually reducing the size of the browser window.

## 3.3. Edit Header Section

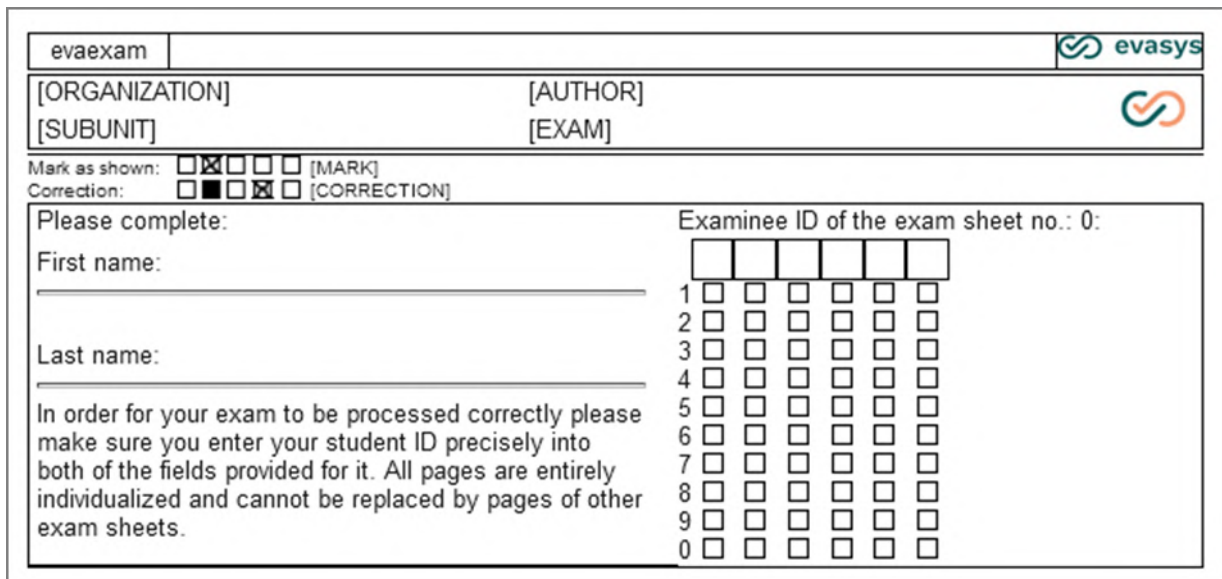
The header section contains a heading line with placeholders (texts in square brackets) which are automatically substituted with the information of the exam, and information on the correct completion of the form.

Below this header the ID area is displayed. On the left you can see a place for the handwritten or automatic entry of the examinees name. On the right-hand side a matrix will appear for the entry of the examinee-ID. The header as well as the ID area both can be adapted.

## Edit ID area

The boxes which are supposed to capture the examinee-ID are displayed in groups, in this case 6 digits as XXXXXX. This group sequence is predetermined by the administrator, and is then taken as standard for all evaexam sheets. If the administrator has granted the examiners the right to do so, you can define your own format for the examinee-ID. This preset will be valid for all your exams and not only for one exam sheet. For further information, see chapter 2.2. "Exam Related Presets".

You can see an example header of an exam sheet in the following figure:



evaexam evasys

[ORGANIZATION] [AUTHOR]

[SUBUNIT] [EXAM]

Mark as shown: ☐ ☒ ☐ ☐ [MARK]

Correction: ☐ ☒ ☐ ☐ [CORRECTION]

Please complete:

First name: \_\_\_\_\_

Last name: \_\_\_\_\_

In order for your exam to be processed correctly please make sure you enter your student ID precisely into both of the fields provided for it. All pages are entirely individualized and cannot be replaced by pages of other exam sheets.

Examinee ID of the exam sheet no.: 0:

1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Figure 18: Preview of the Header of the Exam Sheet**

If you desire to do so, you can individualize or switch off the ID area. To do so, click on the area. A window opens offering you three possibilities:

- Default ID area
  - The header is displayed and used as shown in the figure above.
- Individualized ID area
  - The left side of the ID area can be overruled. This is the section where your participants can manually enter their first and last name.
  - To overrule the text, enter your individual text in the entry box. Please note that the left side will be overruled completely (including all lines and texts) and has to be completely built up anew.
- No ID area
  - The complete ID area (including the matrix field which is used to capture the examinee-IDs) is turned off.
  - You may only select this option if later on import participant data for this exam (first name, last name and examinee-ID), because otherwise the exam sheets cannot be assigned to the participants. Additionally, you have to use placeholders for the participants in the exam sheet header (see below for further informa-

tion), so that each participant can receive an own individualized exam sheet.

Figure 19: Edit ID area

### Edit Header

The placeholders in the header are automatically substituted with the exam data when generating the exam. By default, the header contains the following placeholders:

- [ORGANIZATION] = Name of the organization
- [SUBUNIT] = Name of the subunit
- [AUTHOR] = Name of the examiner (= Your name)
- [EXAM] = Name of the exam

When clicking on one of the placeholders the placeholder wizard opens.

**Placeholder Wizard**

**Form header settings**

Number of lines: 2

**Define Placeholders**

Default Placeholder: [ORGANIZATION]

Please choose a placeholder and/or individualize the form header.

Placeholder: [ORGANIZATION]

Participant Placeholder: ID

Placeholder across both columns: ☐ (Note: The placeholder in the other column of this line will be deleted automatically.)

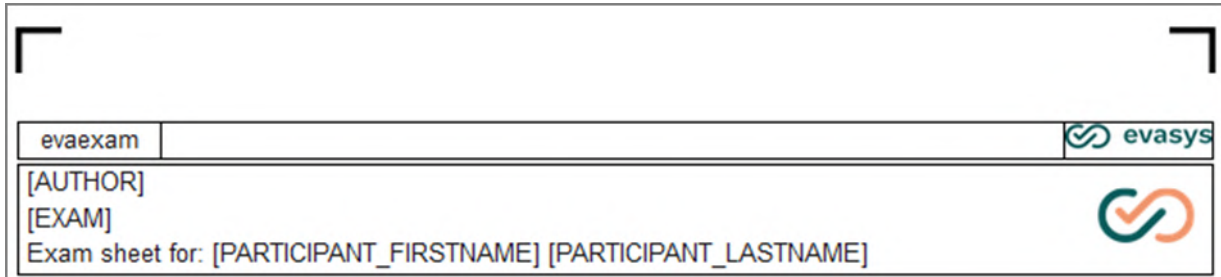
Apply Cancel

**Figure 20: Placeholder Wizard**

You can take several actions:

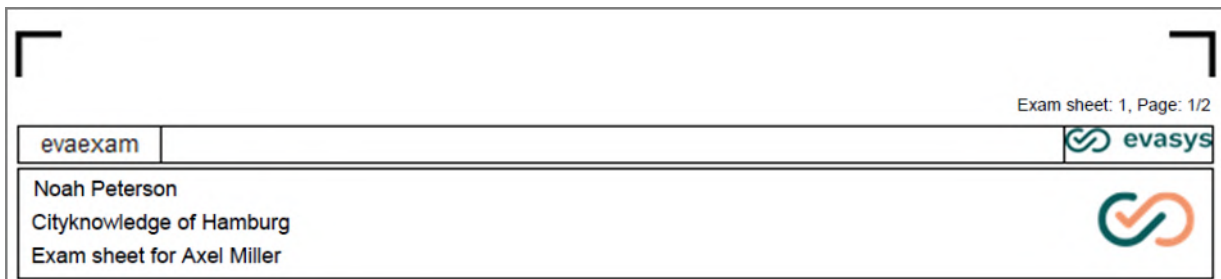
- In the section “Edit placeholders” you can overrule the existing placeholder. You can either select a new placeholder by clicking on the icon above the entry box, or you can enter static text. If you want to use placeholders for participants (e.g. first and last name), select the corresponding placeholders from the drop-down list below the entry box. You can also combine static texts and placeholders.
- If you want to place more information in the header such as, for example, participant placeholders, you can enlarge your form header by selecting a higher number of lines in the “Form header settings”. Of course, you can also use this drop-down list to reduce the number of lines.
- If you have entered more than one placeholder or a longer text at one of the placeholder positions, you can enlarge the placeholder across both columns by checking the corresponding box. In this case, the placeholder on the right side will be deleted, the placeholder on the left side can stretch over the whole width of the header.

A header line which has been adapted by adding participant placeholders could, for example, look like this:



**Figure 21: Adapted header with participant placeholders**

When the placeholders have been substituted, the exam sheet looks like this:



**Figure 22: Adapted header after placeholders have been substituted**

### 3.4. Text Editor Functions

There are a variety of options available to you when entering text into the text editor (question group names, question texts, option texts, free text). In addition to Bold, Italic, and Underline, you can set text as either subscript or superscript. This is helpful when entering simple formulas. For formulas with complicated characters, it is a good idea to use the formula editor. See chapter 3.9. "Formula Editor". You can also add a link to the text; the link will always open in a new window. You can also change the color of the text.

#### **Note:**

If you use colored text for exam sheets for online practices or online exams, use the online preview to check readability in the online template you have chosen.



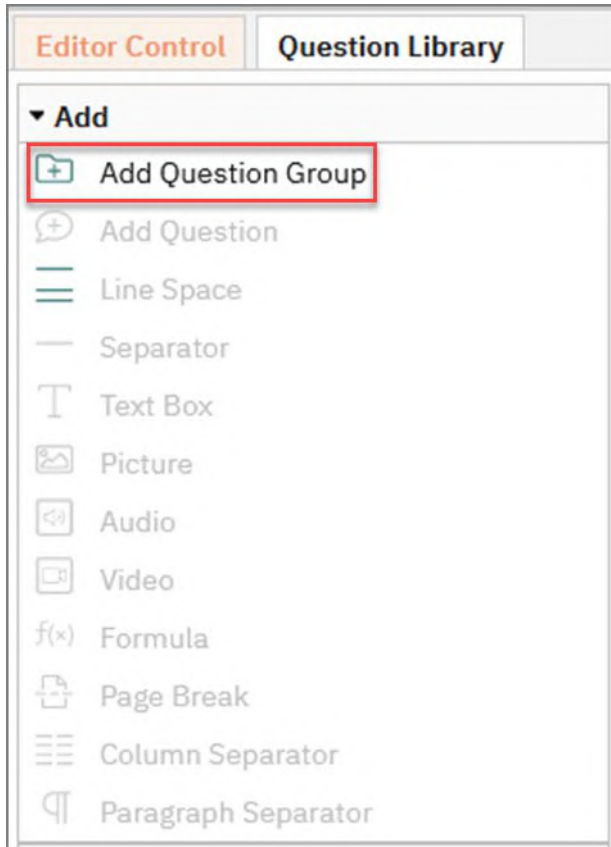
Figure 23: Text Editor

The editor has an additional function known as 'Safe Paste.' For example, if you need to paste text from a Word document, it may be the case that invisible control characters, spreadsheets, etc. are pasted with the text. This can cause serious problems, which is why we have integrated a clean paste mode. If you paste text (using [CTRL] + [V] or the context menu) a template will open. You have to repeat the paste command in the template. The template will then filter out any incorrect elements before accepting the text and its format. You can also open this window using the text editor's 'Clipboard' symbol.

The “Secure adding” function is activated by default. It can however be switched off by the Administrator of your evaexam system.

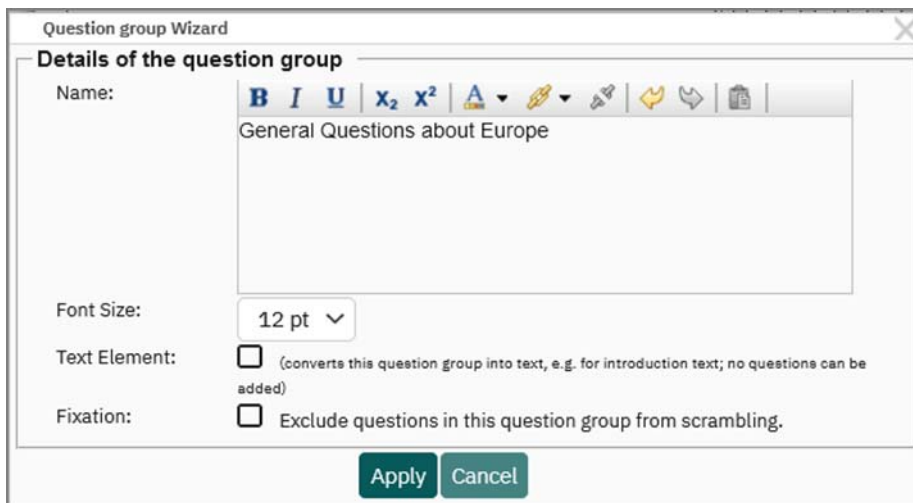
### 3.5. Adding a Question Group

In order to fill the exam sheet with questions, a question group must first be created. A question group is a chapter of questions on the sheet. You can have as many question groups on the sheet as you may require. Click on “Question Group” in the “Add” section of the editor or use “Drag & Drop” to place it on the questionnaire:



**Figure 24: Create a new Question Group**

Then enter the name of the new question group:



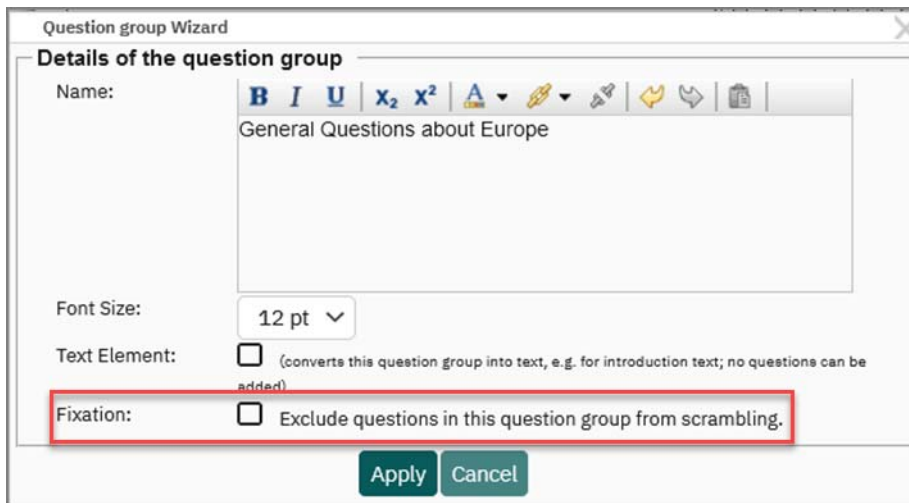
**Figure 25: New Question Group**

It is possible to remove the question group from the permutation, i.e. from the creation of variants. To do so, activate “Fixation”. This function is activated when the questions and elements of a question group must always be kept together, even when using variants (in order to prevent correct solutions from being “copied”).

If the “Text Element” checkbox is activated, the question group becomes purely a text element. Questions may no longer be added. The text to be displayed is entered in the box for the question group names. The first and last text elements of a questionnaire are automatically excluded from the creation of variants.

### Note:

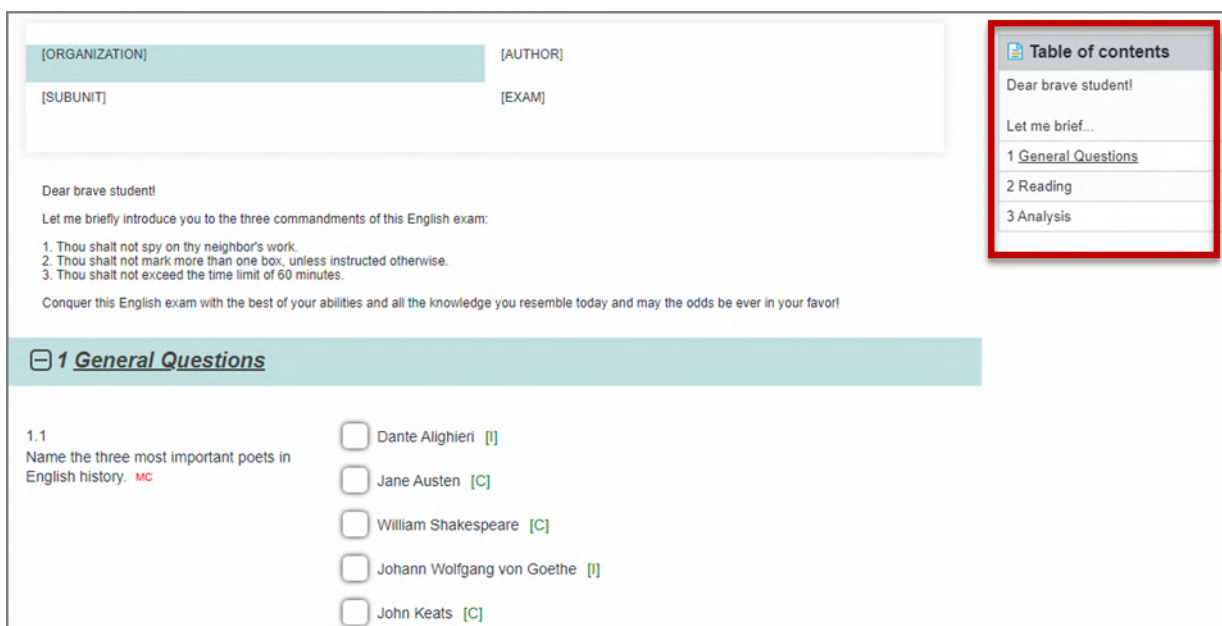
Once a question group has been added as text element, this can no longer be reversed. Instead, the text element has to be deleted and the question group created again.



**Figure 26: Excluding question group from permutations**

Click on [Apply] to create the question group. Now questions can be created.

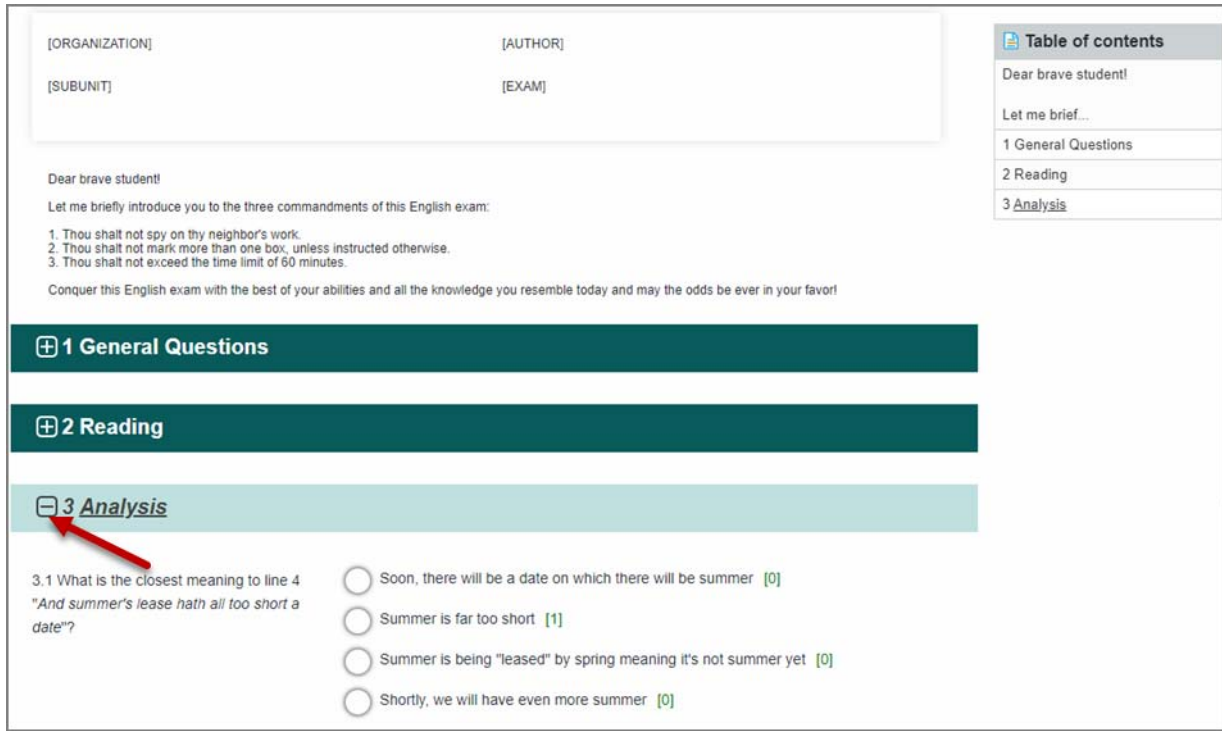
After creating question groups, a table of contents appears on the right-hand side of the editor. You can use this list to switch to a specific question group.



**Figure 27: Table of Contents in the Editor**



To improve clarity, you can dynamically open and close question groups by clicking on the plus or minus symbol in the question group title. Please note that this function is only available in the online view.



[ORGANIZATION] [AUTHOR]  
[SUBUNIT] [EXAM]

Dear brave student!  
Let me briefly introduce you to the three commandments of this English exam:  
1. Thou shalt not spy on thy neighbor's work.  
2. Thou shalt not mark more than one box, unless instructed otherwise.  
3. Thou shalt not exceed the time limit of 60 minutes.  
Conquer this English exam with the best of your abilities and all the knowledge you resemble today and may the odds be ever in your favor!

**+ 1 General Questions**

**+ 2 Reading**

**- 3 Analysis**

3.1 What is the closest meaning to line 4  
"And summer's lease hath all too short a date"?

☐ Soon, there will be a date on which there will be summer [0]

☐ Summer is far too short [1]

☐ Summer is being "leased" by spring meaning it's not summer yet [0]

☐ Shortly, we will have even more summer [0]

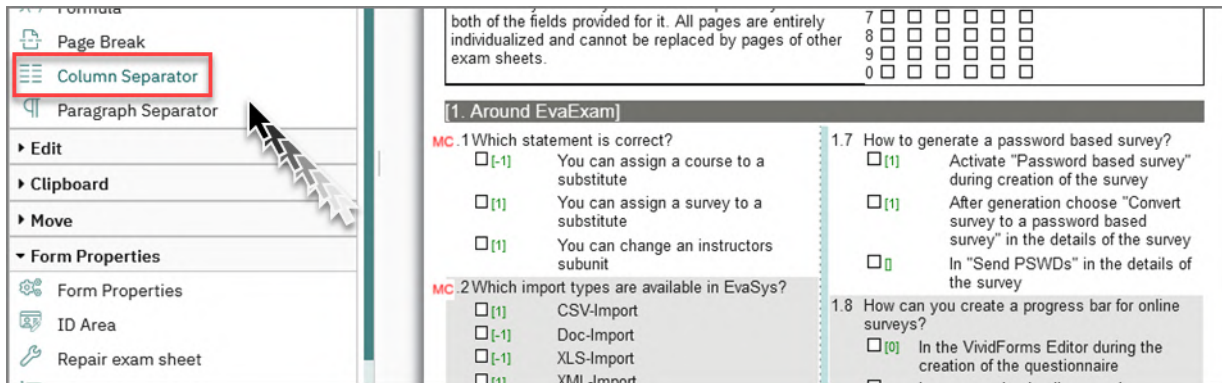
**Table of contents**  
Dear brave student!  
Let me brief...  
1 General Questions  
2 Reading  
3 Analysis

Figure 28: Open and close Question Groups

### 3.6. Double-column question group (Column separator)

Within a question group, the layout can be switched between single- and double-columns. This means that two questions can be placed beside each other. A column separator is added to the question group in order to make a question group double-columned.

The layout will adjust automatically. The system tries to reach an even distribution of elements for both columns. It is possible to deactivate this function during adding the column separator. In this case all elements of a paragraph above the column separator will show up in the left column and all elements below the separator will show up in the right column.



**Figure 29: Adding a column separator**

The complete question group does not need to have a double-column structure. By adding a column separator to a question group, you can switch back and forth between a single- and double-column view.

The column separation is only for paper exams. If required, the elements can be marked and moved between the columns, or moved via the cache memory using "Cut", "Copy" and "Paste".

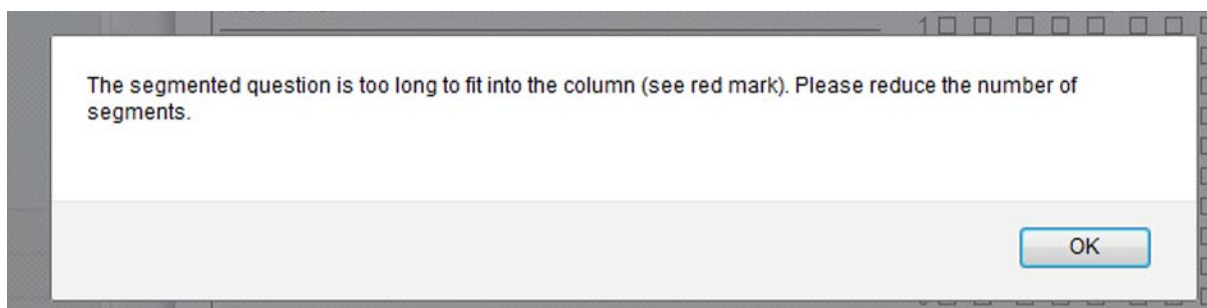
### Tip:

In particular when using double-column layout, it may happen that the text being used is slightly too long making the break optically unpleasing. The "Adjust text" option in the "Settings" menu in the editor control reduces the distance between characters and can therefore help fit text into a line that is slightly too long. The selection applies to the complete questionnaire.

You can select between, no, slight, medium, and major text adjustment.

### Note:

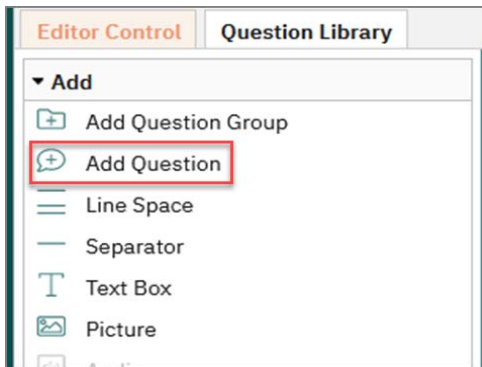
When adding or transferring a segmented (ICR) question, the system checks if there is sufficient space in the double-column layout. If this is not the case, a warning message is displayed and the question marked in red. The question remains marked in red until the error is rectified, for example, by reducing the segments (see the following illustration). For further information on segmented questions compare chapter 3.7.7. "Segmented Open Questions (ICR)".



**Figure 30: Warning message: Question too wide**

### 3.7. Adding Questions

Click on “Add Question” in the “Add” section of the editor or use “Drag & Drop” to place it on the questionnaire.

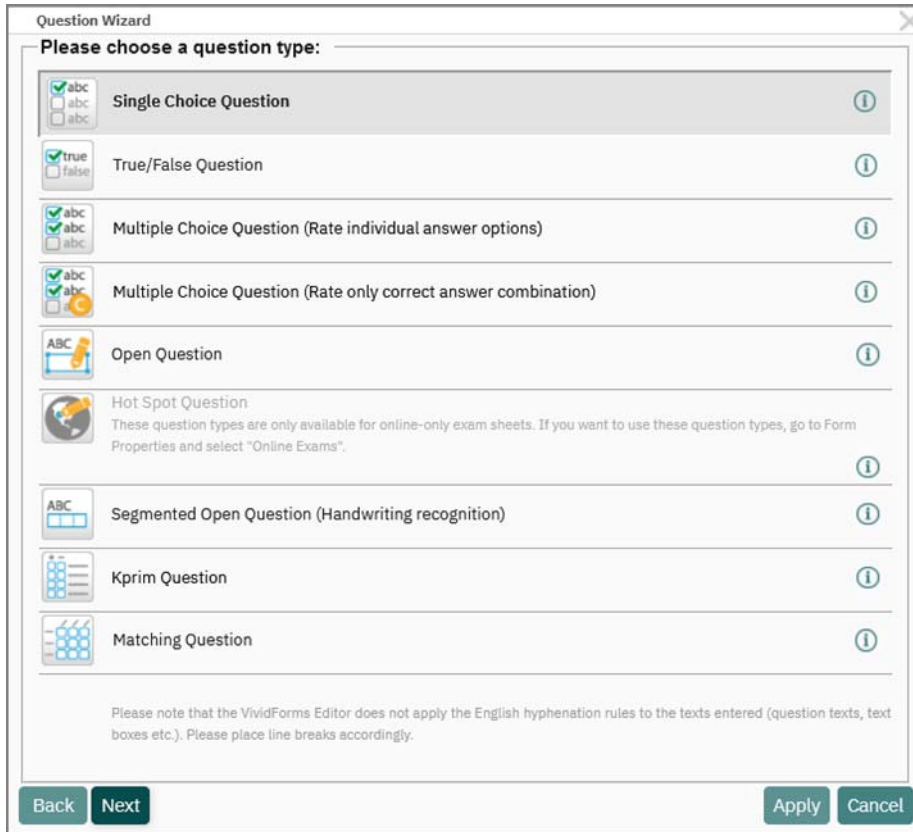


**Figure 31: Creating a New Question**

The Question Wizard appears. In the first step, you can select the required question type. There are a variety of question types available:

- [Single Choice Questions](#)
- [True/False Questions](#)
- [Multiple Choice Questions \(Rate individual answer options\)](#)
- [Multiple Choice Questions \(Rate only correct answer combination\)](#)
- [Open Questions](#)
- [Hotspot Questions](#)
- [Segmented Open Questions \(ICR\)](#)
- [Kprim Questions](#)
- [Matching Questions](#)

By moving the mouse over the info icon on the right side you can open a preview of the question type.



The screenshot shows a 'Question Wizard' dialog box with a list of question types. The 'Single Choice Question' is selected and highlighted. Other options include 'True/False Question', 'Multiple Choice Question (Rate individual answer options)', 'Multiple Choice Question (Rate only correct answer combination)', 'Open Question', 'Hot Spot Question', 'Segmented Open Question (Handwriting recognition)', 'Kprim Question', and 'Matching Question'. A note at the bottom states: 'Please note that the VividForms Editor does not apply the English hyphenation rules to the texts entered (question texts, text boxes etc.). Please place line breaks accordingly.' Buttons for 'Back', 'Next', 'Apply', and 'Cancel' are at the bottom.

Question Type	Icon	Info
Single Choice Question	<input checked="" type="checkbox"/> abc <input type="checkbox"/> abc <input type="checkbox"/> abc	i
True/False Question	<input checked="" type="checkbox"/> true <input type="checkbox"/> false	i
Multiple Choice Question (Rate individual answer options)	<input checked="" type="checkbox"/> abc <input checked="" type="checkbox"/> abc <input type="checkbox"/> abc	i
Multiple Choice Question (Rate only correct answer combination)	<input checked="" type="checkbox"/> abc <input checked="" type="checkbox"/> abc <input checked="" type="checkbox"/> abc	i
Open Question	ABC	i
Hot Spot Question		i
Segmented Open Question (Handwriting recognition)	ABC	i
Kprim Question		i
Matching Question		i

Please note that the VividForms Editor does not apply the English hyphenation rules to the texts entered (question texts, text boxes etc.). Please place line breaks accordingly.

Back Next Apply Cancel

**Figure 32: Choosing the Question Type (here: Single Choice)**

Once you have selected the question type, you can then enter the appropriate text and options. In addition to the question text itself, you are able to enter text for every question which can be displayed during online practices and in the single student report.

Definitions:

### Explanation

The explanation is an explanatory text for the question, and can be used in online practices. For example, you can include the correct answer in this text. It will then be displayed to the participant when he checks if their answer is correct or not. The explanation text can furthermore be displayed in the single student report.

### Reference

In online practices, the reference can be used to point to additional information, such as publications, specialist literature, etc. In case of online practices you could also enter a link to website here. The reference text can also be displayed in the single student report.

## Short name

The 'Short name' is a short description of the question which allows it to be better sorted into the question library, and gives a better idea of the contents in the event of complex question text.

**Figure 33: Additional Question Text**

## Edit answer options:

For all question types (except open questions) the following options are available for editing the answer options:

- **Move**  
The individual answer options can be moved up and down to change the order. Click on the desired answer option once and then move it with the arrow keys.
- **Edit**  
To edit an answer option, click it once in the “List of answer options”. Alternatively, mark the option in the “List of answer options” and click the pencil icon.  
In both cases the option will then appear in the upper section “Answer option” and you can change it. After editing, do not forget to click [Update option].
- **Immobilize**  
You can fix individual answer options in order to exclude them from scrambling when creating versions (chapter 5.6. "Create Exam - Versions"). By default, all options can be mixed during the creation of versions.
- **Delete**  
You can delete the highlighted answer option.

Question Wizard

**Single Choice Question**

Question text: **B I U  $x_2 x^2$**  Mark the capital of Germany!

Explanation:

Reference:

Short name:

Level of Difficulty: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ no assignment

Answer option: **B I U  $x_2 x^2$**  Cologne

Score: 0

List of answer options:

- 0: Hamburg
- 1: Berlin
- 0: Cologne
- 0: Munich
- 0: None of the above...

Paper Display: Answer options in single column beneath the question

Picture: Integrate picture Remove picture

Update option

**Figure 34: Editing the answer options of a question**

### Saving answer options

For all question types, evaexam displays a warning dialog if you have not yet added the answer option you entered.

Via clicking [OK] in the warning dialog the answer option will be added. The button [Cancel] returns to the question wizard and allows you to further edit your question and the associated answer options and scores.

This ensures that all entered answer options are really adopted. Accidental “non-saving” is thus avoided.

As soon as a question has been transferred to the exam sheet via the [Apply] button, it is automatically saved by evaexam.

### 3.7.1. Single Choice Questions

In the question wizard, select the question type 'single choice' and click on [Apply].

The screenshot shows the 'Question Wizard' window for a 'Single Choice Question'. The interface includes several sections:

- Question text:** A text area with a rich text editor toolbar (bold, italic, underline, subscript, superscript, text color, background color, bulleted list, numbered list, link, unlink, insert image, insert table) containing the text 'Mark the capital of Germany!'.
- Explanation:** An empty text area.
- Reference:** An empty text area.
- Short name:** An empty text area.
- Level of Difficulty:** Radio buttons for levels 1 through 5, and a selected 'no assignment' option.
- Answer option:** A text area with a rich text editor toolbar, currently empty.
- Score:** A text input field containing '0' and an 'Add option' button.
- List of answer options:** A list box containing:
  - 0: Hamburg
  - 1: Berlin
  - 0: Cologne
  - 0: Munich
  - 0: None of the above...
 To the right of the list are icons for up/down arrows, a pencil (edit), a lock, and a close button.
- Paper Display:** A dropdown menu set to 'Answer options in single column beneath the question'.
- Picture:** Buttons for 'Integrate picture' and 'Remove picture'.
- Formula:** Buttons for 'Integrate formula' and 'Remove formula'.
- Navigation:** 'Back' and 'Next' buttons at the bottom left, and 'Apply' and 'Cancel' buttons at the bottom right.

**Figure 35: Question Wizard**

If required, a level of difficulty can be assigned under the text. If the question is stored in the question library to be used again, it can be filtered according to the level of difficulty. To use the question library please see chapter 13. "Further Options".

Under the difficulty settings you are able to type in the text for the first possible answer in the region "Options". Below this space you should enter the score you want to assign to this answer. Point values from -10 to 10 are permitted. If the participant selects no answer option or more than one answer option, the answer will be treated as invalid and no points will be awarded.

**Note:**

Only in very special cases, negative scores for single choice questions make sense at all. For further information please refer to the Guide for the creation and analysis of exams with evaexam which can be downloaded in the Extras menu.

Click [Add option] to add this answer option to the list of possible answers.

### Hint:

Instead of clicking [Add option] you can also add the answer by pressing “Ctrl + Enter”.

Furthermore you can use the Tab key. Once the [Add option] button is focused, you can confirm your entry with the “Enter key” and the answer will be added to the list of answer options.

Now continue to apply further options, as well as the corresponding scores.

Question Wizard

Single Choice Question

Question text: **B I U  $x_2 x^2$  A** Mark the capital of Germany!

Explanation:

Reference:

Short name:

Level of Difficulty: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ no assignment

Answer option: **B I U  $x_2 x^2$  A** Cologne

Score: 0 **Update option**

List of answer options:

- 0: Hamburg
- 1: Berlin
- 0: Cologne
- 0: Munich
- 0: None of the above...

Paper Display: Answer options in single column beneath the question

Picture: **Integrate picture** **Remove picture**

Formula: **Integrate formula** **Remove formula**

**Back** **Next** **Apply** **Cancel**

**Figure 36: Editing the Answer Options (Single Choice)**

To edit an option of the “Option List” mark the option and click the pencil icon. Then the option will be shown in the above area “Answer option”.

Alternatively you can only mark the answer in the “List of answer options” and it will be shown automatically in the area “Answer option”.

Now you can change it. Do not forget to click [Update option] to confirm the changes.

If required, an image can also be attributed to a question. To do this, click on the button [Integrate Image]. The Image Selection Wizard opens. In the first drop down menu you can select the desired image which is to be linked to the question. You can select any image from the image library. However, you can also upload a new image to the



system by clicking 'Upload New Image'. In the following, you can define the alignment of the image. The following options are available:

- Between question text and answer options
- Below question text and answer options
- Next to the answer options
- Next to the question text and answer options

The image can be displayed either on the left or the right of the question text. To do this, select the relevant option in the third drop down menu. In the final step, the size of the image is defined in percent of the page width.

Do not activate the "Scale image" checkbox if you wish to integrate the image unscaled to prevent blurring due to image adjustment.

Click on [Apply] to add the image to the question.

**Integrate picture**

**Select picture**

Please select a picture from the library ...

- Shakespeare (The picture shows Wil)
- Germany
- Brandenburger Tor
- Elphilharmonie

Upload new picture

---

**Form Properties**

Alignment: next to answer options

Image: left-aligned

☐ Scale image

Scaling in % of paragraph width: 0

Apply Cancel

**Figure 37: Picture Assistant**

Click [Apply] to create this single choice question.

Then it will appear on the preview of the exam sheet:



1.7 Mark the capital of Germany!

- ☐ [0] Hamburg
- ☐ [1] Berlin
- ☐ [0] Cologne
- ☐ [0] Munich
- ☐ [0] None of the above...

**Figure 38: The Question on the Exam Sheet (Editor view)**

**Note:**

In evaexam it is possible to create versions (chapter 5.6. "Create Exam - Versions").

In this case, it is important that images, as described above, are associated with the question and not be inserted separately. Otherwise, it would not be moved with the question.

You also have the option of excluding entire question groups or individual answer options from mixing. For this, see chapter 3.5. "Adding a Question Group" and see section "Immobilize", page 33.

The scores connected to the options appear as green text in square brackets (only in the editor preview). These scores will not appear on the printed exam papers, of course.

The question can later be edited with a double-click. The functions cut, copy and paste are also available.

Single choice questions only allow one answer. If a candidate selects several answers, this question will appear in the verifier after the scanning and processing of the forms. The verifier then has to decide how the answer should be assessed.

**Hint:**

Negative scores can only be entered if the administrator or examiner has activated the option "Allow negative scores for response options" in the menu "System Settings/evaexam Settings/Exam".

### 3.7.2. True/False Questions

True/False Questions are Single Choice questions with only two available options. These options have been entered in advance; you only have to add the correct number of points. Of course, you can use terms other than 'True' and 'False.' You can also change the order that the answers are listed in. However, you cannot add additional options to the question. By clicking the “Exchange” icon, the evaluation of answers can be reversed with one click.

Figure 39: True/False Question

### 3.7.3. Multiple Choice Questions (Rate individual answer options)

The creation of multiple choice questions is carried out in a similar way to that of single choice questions. The difference is that more answers can be marked and accepted, which means that a participant can check more than one box and the answer is still treated as valid by the system. Thus multiple answers do not appear in the verification.

When using the multiple choice question of the type “Rate individual answer options”, you can define a score for marked and unmarked answer options. If you only wish to count the correct decisions of the exam participant, you can award 1 point for marking the correct answer option and 0 points for not marking the correct answer option, and the other way round 1 point for not marking the wrong answer options and 0 points for marking the wrong answer options.

You can also enter negative scores, for example if you wish to correct high guessing probabilities. In the “Guide for creating and analyzing exams with evaexam” (which can be downloaded in the Extras menu) you will find further information on the usage and scoring possibilities for this question type.

Question Wizard

**Multiple Choice Question (Rate individual answer options)**

**Question text** **B I U  $x_2$   $x^2$  A**

**Explanation** Which of the following cities are in Europe?

**Reference**

**Short name**

Level of Difficulty: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ no assignment

Scoring method: A score is defined for each individual answer option. You can define scores for both boxes, checked or unchecked.

Answer option: **B I U  $x_2$   $x^2$  A**

Score: marked  unmarked  **Add option**

List of answer options:

- 1/0: Berlin
- 1/0: Rome
- 0/0: Wellington
- 0/0: New York
- 1/0: Prague
- 1/0: Cologne

Paper Display: Answer options in single column beneath the question

Picture: **Integrate picture** **Remove picture**

Formula: **Integrate formula** **Remove formula**

**Back** **Next** **Apply** **Cancel**

**Figure 40: Multiple Choice question (Rate single answer options))**

### Hint:

Negative scores can only be entered if the administrator or examiner have activated the option “Allow negative scores for response options” in the menu “System Settings/evaexam Settings/Exam”.

### 3.7.4. Multiple Choice Questions (Rate only correct answer combination)

Instead of using the normal method of awarding or deducting points for each individual answer option of a multiple choice question, you can decide, when creating a multiple choice question, that only a certain combination of checked answer options can be scored as correct:

If the participant checks the correct combination of answer options, they receive full marks for the question. If one check mark is missing, or if one check mark is in the wrong place, then the participant receives no marks whatsoever for the question.

The screenshot shows the 'Question Wizard' window for creating a 'Multiple Choice Question (Rate only correct answer combination)'. The interface includes a left sidebar with tabs for 'Question text', 'Explanation', 'Reference', and 'Short name'. The main area contains the following fields and controls:

- Question text:** A rich text editor with a toolbar. The text entered is 'Which of the following cities are in Europe?'.
- Level of Difficulty:** Radio buttons for levels 1 through 5, and a 'no assignment' option.
- Scoring method:** A text box explaining the scoring rule: 'Only a question which has been answered correctly in full will be rated. For incorrect combinations penalty points can be awarded.'
- Score for correct combination:** A numeric input field with the value '2'.
- Penalty for incorrect combination:** An empty numeric input field.
- Answer option:** A rich text editor for adding individual options.
- Option is:** Radio buttons for 'Correct (C)' and 'Incorrect (I)'. The 'Incorrect (I)' option is selected.
- Add option:** A green button to add a new answer option.
- List of answer options:** A list box containing the following options: 'C: Berlin', 'I: New York', 'C: Prague', and 'I: Papeete'. To the right of the list are icons for moving options up/down, adding, deleting, and locking.
- Paper Display:** A dropdown menu set to 'Answer options in single column beneath the question'.
- Picture:** Buttons for 'Integrate picture' and 'Remove picture'.
- Formula:** Buttons for 'Integrate formula' and 'Remove formula'.
- Navigation:** 'Back' and 'Next' buttons at the bottom left, and 'Apply' and 'Cancel' buttons at the bottom right.

**Figure 41: Multiple Choice question (Rate only correct answer combination)**

Apart from awarding a score for the correct combination you can also define a penalty for incorrect combinations. These can be entered as positive or negative scores and will be subtracted from the overall score provided that the correction of negative scores is deactivated in the system settings.

Only in a very few cases it makes sense to award penalty scores for this question type. For further information on the characteristics of this question type and the scor-

ing options please refer to the “User Guide for creating and analyzing exams with evaexam” which can be downloaded in the Extras menu.

In the following figure you can see an example for a multiple choice question (first question). In the Editor preview, it is labeled with a red annotation “MC”. As single and multiple choice questions do not differ in their appearance, there is an additional information in the question text (“Check as many as apply.”):

MC 1.3 Which of the following persons are honorary citizens of the city of Hamburg?

- ☐ [1/0] Uwe Seeler
- ☐ [-1/0] Günther Jauch
- ☐ [1/0] Helmut Schmidt
- ☐ [1/0] Siegfried Lenz
- ☐ [-1/0] Johann Sebastian Bach
- ☐ [-1/0] Willy Brandt

MC 1.4 Which of the following districts are districts of Hamburg?

- ☐ [C] Altona
- ☐ [C] Wandsbek
- ☐ [I] Kreuzberg
- ☐ [C] Eimsbüttel
- ☐ [I] Findorf

**Figure 42: A Multiple Choice Question in the Editor Preview**

### 3.7.5. Open Questions

Open questions allow for more elaborate answers. As with single and multiple choice questions you click “Question” in the “Add” menu of the editor to add a new open question. Then select the question type 'Open Question' and enter the question text, and, if necessary, the explanation, the reference, and the short name.

Figure 43: Creating an Open Question

As a special feature you can enter a solution text for open questions. It is advisable to enter notes on the correct solution of the question here, which can be later on used when scoring the open questions with the help of the online scoring. During online scoring the solution text will be displayed as a utility for correction and evaluation of the participants answers (see chapter 9. "Score Open Questions Online").

Figure 44: Open question: Enter solution text

Below the input of the question texts, you enter the number of lines to be used and the number of whole pages to be added.



In online exams the number of characters a participant can enter in the field can be limited. Finally, the maximum number of points that can be attained for the open question is defined.

After clicking [Apply], the open question appears on the exam sheet:

1.5 Name three main sights of the city of Hamburg.  
[3]

Only to be filled out by examiner

10	20	30	40	50	60	70	80	90	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
0	1	2	3	4	5	6	7	8	9

☐ +0.5

**Figure 45: The Open Question in the Preview of the VividForms Editor**

If, when creating the exam sheet you determined that open questions are to be evaluated on the paper sheet, then a matrix field is displayed above the answer area. The evaluation of the open questions is now conducted by the examiner before scanning. The examiner reads the answers and marks the scores in the evaluation field on the paper sheet. Thus the evaluation field allows the scoring of open questions directly on the original paper forms after they have been completed and collected in. You can assign scores from 0 up to 99.5 in steps of 0.5:

10	20	30	40	50	60	70	80	90	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
0	1	2	3	4	5	6	7	8	9

☐ +0.5

**Figure 46: Assignment of Scores for Open Questions**

The candidates should be alerted that arbitrary entries in the evaluation field make the exam paper invalid. The examiner must however check the answers to the open questions manually before they can be evaluated.

If, when creating the sheets you determined that the open questions are to be evaluated later online, then the answer fields appear without a matrix field.

In the PDF preview you can see an open question on the exam sheet. In the following example you can first see the single choice, the true/false and the multiple choice questions. At the bottom of the first page there appears the question text of the open question together with the evaluation field and the first part of the answer area. The second page is a continuation of the answer area from the first page. At the top of the second page the question text is repeated.



**DRAFT**

Exam sheet: 0

evaexam

Exam sheet for:

Correction: ☐ ☐ ☐ ☐ Please follow the examples shown on the left hand side to help optimize the reading results.

Please complete:

First name: \_\_\_\_\_

Last name: \_\_\_\_\_

Examinee ID of the exam sheet no.: 0:

0									
1									
2									
3									
4									
5									
6									
7									
8									
9									

In order for your exam to be processed correctly please make sure you enter your examinee-ID precisely into both of the fields provided for it. All pages are entirely individualized and cannot be replaced by pages of other exam sheets.

**1. Hamburg Knowledge**

1.1 How many people live in the city of Hamburg?

☐ 70.000  
☐ 700.000  
☐ 1.700.000

1.2 Hamburg is a Hanseatic city.  
☐ True  
☐ False

1.3 Which of the following persons are honorary citizens of the city of Hamburg?

☐ Uwe Seeler  
☐ Günther Jauch  
☐ Helmut Schmidt  
☐ Siegfried Lenz  
☐ Johann Sebastian Bach  
☐ Willy Brandt

1.4 Which of the following districts are districts of Hamburg?

☐ Altona  
☐ Wandsbek  
☐ Kreuzberg  
☐ Eimsbüttel  
☐ Findorf

1.5 Name three main sights of the city of Hamburg.  
Only to be filled out by examiner

0	1	2	3	4	5	6	7	8	9
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7	8	9	

☐ +2.5

**DRAFT**

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**DRAFT**

Exam sheet: 0

evaexam

**1. Hamburg Knowledge [Continue]**

Continuation of question "Name three main sights of the city of Hamburg.":

**DRAFT**

































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**Figure 47: PDF Preview of the Exam Sheet**

Background images and formulas can be inserted inside an open question. In this way, even complex questions can be illustrated.

Question Wizard

Open Question

Question text: **B I U**  $x_2$   $x^2$                                 

Solution: Please name!

Explanation:

Reference:

Short name:

Level of Difficulty: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ no assignment

Answer field

Box Size: 5 lines

Additional pages: 0 (in order to answer this question)

Note: The next free pages after the current page are reserved for this.

Number of characters (online): 0 (maximum number of characters for online exams)

Note: 0 means "without restrictions".

Score: (maximum attainable points)

Picture:

Formula:

Figure 48: Integrating an image or formula

You can integrate either an image or a formula. Integrating both simultaneously is not possible. The image or formula is displayed as background in the answer field.

1.1 ATP: Please fill in the missing elements and write the complete name of ATP

[5]

Only to be filled out by examiner

10	20	30	40	50	60	70	80	90	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
0	1	2	3	4	5	6	7	8	9

+0.5

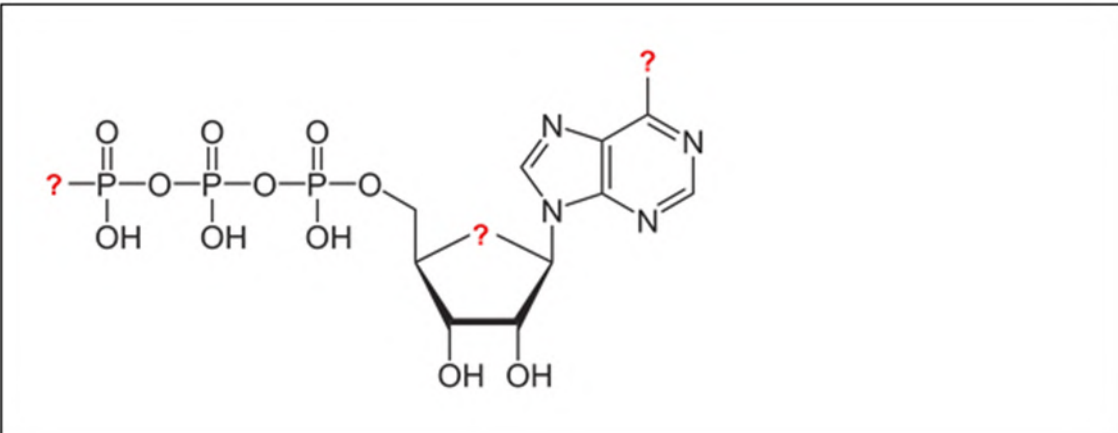


Figure 49: Open question with image

### 3.7.6. Hotspot Questions

Hotspot questions allow you to define one or more areas - hotspots - on a picture. Participants have to identify and mark the hot spots directly in the image.

**Note:**

This question type is only available in the case of online exams.

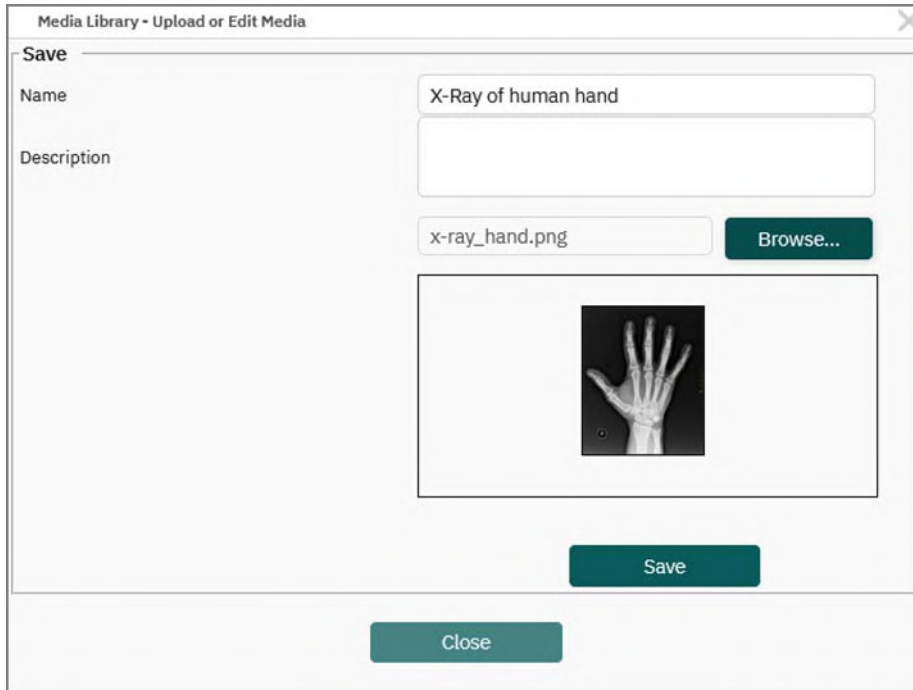
To create a Hotspot question click "Question" in the "Add" menu of the editor. Then select the question type 'Hotspot Question' and enter the question text, and, if necessary, the explanation, the reference, and the short name. If activated, you can additionally assign a difficulty level.

The screenshot shows the 'Question Wizard' dialog box for creating a 'Hot Spot Question'. The dialog has a title bar 'Question Wizard' and a close button. The main content area is titled 'Hot Spot Question' and contains several sections:

- Question text:** A text area with a rich text editor toolbar (bold, italic, underline, subscript, superscript, text color, background color, bulleted list, numbered list, link, unlink, image, table, undo, redo, reset). The text 'Please locate the **scaphoid** on the X-ray of the hand.' is entered.
- Explanation:** A text area.
- Reference:** A text area.
- Short name:** A text area.
- Level of Difficulty:** Radio buttons for 1, 2, 3, 4, 5, and a checked radio button for 'no assignment'. A link for 'Item Analysis' is also present.
- Picture:** A section with an 'Integrate picture' button.
- Selected image:** The text 'Röntgenbild Hand' is displayed.
- Marking color for online exam:** A color selection bar with a red color selected.
- Scoring method:** The text 'Rate individual answer options' is displayed.
- Number of hotspots:** The text '1 Hotspots' is displayed.
- Overall score:** The text '3 Score' is displayed.
- Edit hotspots:** A button located at the bottom right of the main content area.
- Navigation:** 'Back' and 'Next' buttons at the bottom left, and 'Apply' and 'Cancel' buttons at the bottom right.

**Figure 50: Create a Hotspot Question**

To assign a picture to the question, you must first upload the desired image to the Media Library. JPG as well as PNG files are supported. Open the "Settings" menu in the editor control to access the "Media Library" and select the "Picture" media type:




Media Library - Upload or Edit Media

**Save**

Name: X-Ray of human hand

Description:

x-ray\_hand.png **Browse...**



**Save**

**Close**

**Figure 51: Upload Picture into the Media Library**

If the resolution of the pictures is too high, they will be scaled automatically. As soon as graphics are available in the media library, they can be used for hotspot questions. In the question wizard, images are assigned to the question by clicking the [Integrate picture] button.

Once an image has been uploaded, you can customize the Hotspot question using the [Edit hotspots] button:

Question Wizard

### Hot Spot Question

Question text

Explanation

Reference

Short name

**B** *I* U |  $x_2$   $x^2$  | A | | | | |

Please locate the **scaphoid** on the X-ray of the hand.

Level of Difficulty: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ no assignment | Item Analysis

Picture: Integrate picture

Selected image: *X-Ray of human hand*

Marking color for online exam:

Scoring method: **Rate individual answer options**

Number of hotspots: **1 Hotspots**

Overall score: **3 Score**

Edit hotspots

Back Next Apply Cancel

**Figure 52: Access “Edit Hotspots“ Button**

The menu that opens is divided into three sections:

Hot Spot Question

Scoring method:

☐ Rate only correct answer combination
 

Score for correct combination:

☒ Rate individual answer options

Options

Marking color for online exam:

💡 Did you know?

Try to avoid colors like green and red. They might be confused with the solution hints.

Hotspots (Max. 20 possible)

Hotspot	Score	
1	<input type="text" value="1"/>	<input type="checkbox"/>

New Hotspot

Remove selected

💡 Hints on usage

Select "New Hotspot" to begin with a new area.

Apply

Close

**Figure 53: Edit Hotspots**

In the first section "Scoring method" you can define whether you want to score individual answer options or whether only the correct combination leads to receiving points for this question. If you want to rate individual answer options, you can define a score per hotspot. In the case of the correct answer combination, you enter the points to be achieved that examinees will receive if all hot spots have been correctly identified and marked.

In the second section "Options" you can determine the marking color. Choose the marker color depending on the color scheme of the uploaded image. It should stand out as clearly as possible.

In the third section "Hotspots" you can set up one or more hot spots. Note that a maximum of 20 hotspots can be assigned. To define one, click on the [New Hotspot] button. Use the mouse to click in the area of the image that you want to define as a hot spot. To do this, click the mouse along the boundary of the area. The points you set connect to form a frame:

**Question Wizard**

**Hot Spot Question**

**Scoring method:**

☐ Rate only correct answer combination

Score for correct combination:

☒ Rate individual answer options

**Options**

Marking color for online exam:

**Did you know?**

Try to avoid colors like green and red. They might be confused with the solution hints.

**Hotspots (Max. 20 possible)**

Hotspot	Score	
1	<input type="text" value="1"/>	<input type="checkbox"/>


**Hints on usage**

Click on the image to surround the hotspot area. The form must not contain any crossing lines.

You can revert the last point with the "Undo" button.

To close the form, perform a **right click** within the image or select the "Close hotspot" button.

To delete existing hotspots, please finish the current hotspot first.



**Figure 54: Set up a Hotspot**

**Note:**

Please note that crossing lines are not permitted. If so, the hotspot cannot be set up.

If you want to cancel the last step, you can click the [Undo] button. When you have finished outlining an area, activate the [Close hotspot area] button or press the right mouse button. When the hotspot area is closed, the outlined area is filled in the selected color. The hotspot has been successfully set up. If desired, you can now define further areas.



### 3 Hand Anatomy

3.1 Please locate the **scaphoid** on the X-ray of the hand.



Figure 55: Display of a Hotspot Question in an Online exam

If desired, the pictures with the markers that have been placed can be displayed in the detailed individual reports of the participants. For more information on configuring the individual reports, see chapter 2 10. „Evaluation“.

#### 3.7.7. Segmented Open Questions (ICR)

The segmented open question enables results to be retrieved, e.g., from arithmetical tasks in a specified format (segmentation). An automatic evaluation of the answer in online exams is possible (if the ICR option is licensed, in paper-based exams as well).

This question type requires that the option “Later evaluate online” in the exam sheet settings is activated. If this is not the case, a warning message will appear and “Later evaluate online” will be activated automatically (see chapter 3.1. “Define Form Information”).



Question Wizard

### Segmented Open Question (Handwriting recognition)

**Question text**

**Solution**

**Explanation**

**Reference**

**Short name**

A motorist drives his car 698 km. His gasoline tank, which holds 45 liters, contained 41 liters before he left. After the trip, he fills up the car completely with 39.3 liters. What was the consumption in liters per 100 km? Please also indicate the solution path.

Level of Difficulty: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ no assignment | % Item Analysis

**Approach (only for paper exams)**

Text box for specifying the approach: ☒ Yes ☐ No

Box Size:  8 lines left on this page.

**Result**

Description:

Language:

Format:

☒ N as Number ☐ L Letter ☐ A Letter or number

Style of segmented box: ☒ ☐ ☐ ☐

Verification display\*:

Score:  (maximum attainable points)

Figure 56: Segmented open question

The question text and the solution text are entered in the question assistant. For automatic evaluation, the solution text for the segmented open question has to contain the exact solution that the participant must enter to attain the points.

#### Hint:

If several solutions are possible, they have either to be entered under one another or the range of values has to be entered using the syntax [NN:NN]. This range of values

- must be marked by square brackets,
- must be defined in ascending order (e.g.: [-10:10] or [8,5:12,2],
- may include a sign,
- can contain decimal places.

Only one range of values can be specified per solution line (see Figure 59: Solution with indication of the value range).

#### Note:

The solution text has to contain all the characters entered under “Format”, i.e. including characters entered already. Example Figure 58: Solution: The unit “l/100km” specified in “Format” also has to be entered in the solutions, even though the participant only enters the numbers.

The entry field for the solution is located under “Format”. You can specify which values are expected for the segments. If the ICR option is licensed for your evaexam system, the expected character type is taken into account when processing the question. The abbreviations have the following meanings:

- N = A number is expected; decimal separators (“.” and “,”) are accepted (numerical)
- L = A letter is expected (alphabetical)
- A = A letter, a number or a special character is expected (see Figure 57: Special characters alphanumerical ICR question) (alphanumerical)

The following signs are allowed as special characters:

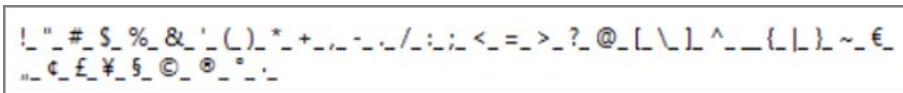


Figure 57: Special characters alphanumerical ICR question

#### Hint:

To achieve best reading results the character type should be set to Number (N) or Letter (L). If possible, you should avoid using the alphanumeric option (A).

In addition, for segmented open questions with ICR recognition, a custom ICR classifier for alphanumeric values can be defined. With this custom classifier, the range of accepted alphanumeric input can be restricted. Therewith, the reading reliability will be improved. Please contact your evaexam administrator for further information and implementation.

Additionally you can add further characters (e.g. separators or units). These have to be inserted at the desired position and have to be placed in inverted commas. In the example (see Figure 56: Segmented open question and Figure 58: Solution) you can see that a comma (",") and the unit ("l/100km") have been added to the format

**Question Wizard**

**Segmented Open Question (Handwriting recognition)**

**Question text** **B I U**  $x_2$   $x^2$  **A** **↩** **↪** **↻** **✂**

**Solution** 05,1 l/100km

**Explanation** 5,1 l/100km

**Reference** 5,0 l/100km

**Short name**

Level of Difficulty: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ no assignment | % Item Analysis

**Approach (only for paper exams)**

Text box for specifying the approach: ☒ Yes ☐ No

Box Size: 5 lines  8 lines left on this page.

**Result**

Description **i** Specify result with one decimal place

Language: Deutsch

Format: **i** NN","N" l/100km"

☒ as Number ☐ Letter ☐ Letter or number

Style of segmented box: ☒ ☐ ☐ ☐

Verification display\*: From low to middle reading reliability

Score: 5 (maximum attainable points)

**Back** **Next** **Apply** **Cancel**

**Figure 58: Solution**

Question Wizard

**Segmented Open Question (Handwriting recognition)**

Question text

**Solution** [5,0:5,1] l/100km

Explanation

Reference

Short name

Level of Difficulty: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ no assignment | % Item Analysis

**Figure 59: Solution with indication of the value range**

For paper-based exams, a field can be added for entering the approach to finding a solution. When awarding points, this enables the examiner to partially acknowledge the correct approach despite the incorrect end result. The approach is not automatically evaluated; rather, it must be always evaluated by the examiner.

The size of the field, i.e. the number of lines used for finding a solution, can be adjusted. During this, the amount of space still available on the current page is indicated.

**Approach (only for paper exams)**

Text box for specifying the approach: ☒ Yes ☐ No

Box Size: 5 lines 8 lines left on this page.

**Figure 60: Approach when finding a solution**

**Note:**

The field for the approach when finding a solution only appears in paper-based exams. It cannot be entered in online-based exams.

### 3.7.8. Kprim Questions

The Kprim question is a question with four answer options which can be right or wrong. With the help of two answer columns (+/-) the participants have to decide whether a statement is correct or incorrect.

**Hint:**

Instead of clicking [Update option] you can also add the answer by pressing “Ctrl + Enter”.

Furthermore you can use the Tab key. Once the [Add option] button is focused, you can confirm your entry with the “Enter key” and the answer will be added to the list of answer options.

Question Wizard

**Kprim Question**

**Question text** **B I U  $x_2$   $x^2$  A** Which of the following statements is true and which is not?

**Explanation**

**Reference**

**Short name**

Level of Difficulty: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ no assignment

Scoring method: Determine which of the 4 statements are correct. Full points are awarded if you determine all 4 statements correctly, half is awarded if you determine 3 correctly. No points are awarded if fewer than 3 are determined correctly.

Score for correct combination:

Answer option: **B I U  $x_2$   $x^2$  A** Peking is located in the United States

Option is: ☐ Correct (C) ☒ Incorrect (I) **Update option**

List of answer options: C: Berlin is located in Europe  
I: New York is located in Europe  
C: Chicago is located in the United States  
**I: Peking is located in the United States**

Picture: **Integrate picture** **Remove picture**

Formula: **Integrate formula** **Remove formula**

**Back** **Next** **Apply** **Cancel**

Figure 62: Kprim question: Define answer options

The scoring is predefined: If the participant has correctly arranged all four statements, he or she is awarded the maximum points; for three correctly arranged statements, he or she is awarded half the points. No points are awarded for values below this.

1.7 Which of the following statements is true and what is wrong?

☐ ☐ [C] Berlin is located in Europe

☐ ☐ [I] New York is located in Europe

☐ ☐ [C] Chicago is located in the United States

☐ ☐ [I] Peking is located in the United States

Figure 63: Kprim question in the Editor preview

### 3.7.9. Matching Questions

A Matching question is a question that involves matching the value entered into a column correctly with one another value listed in a row.



Question Wizard

### Matching Question

**Question text** **B I U  $x_2$   $x^2$  A**

**Explanation** Assign the following twin towns of Hamburg to their respective countries.

**Reference**

**Short name**

Level of Difficulty: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ no assignment

Scoring method: ☐ Rate individual pairs  
If this option is enabled, a score is defined for each individual pair.  
☒ Rate only complete Question  
If this option is enabled, only a question which has been answered correctly in full will be rated.  
For incorrect combinations 0 points will be awarded.

Score for correct combination:

Vertical Value:

Horizontal Value:

List of pairs:

C: Marseille <=> France  
C: Dresden <=> Germany  
C: Osaka <=> Japan  
C: Léon <=> Nicaragua  
C: Chicago <=> USA

Scrambling:

Back Next Apply Cancel

**Figure 64: Creating a Matching Question**

When it comes to evaluating the question, you can select whether each value pair is assigned its own number of points, or if a (total) number of points can only be achieved by correctly filling in the entire matrix.

For each pair, enter the value for the row in the text box 'Vertical Value' (in the example, this is the name of the capital city), and the value for the column in the text box 'Horizontal Value' (in the example, this is the name of the country).

If you have chosen 'Rate individual pairs', enter the number of points to be awarded for the pair in question. In the example, we have only listed valid (that is, correct) pairs, however you can also enter invalid pairs.

**Note:**

Please note that there is a character limit of 50 characters maximum for vertical and horizontal values.

1.6 Assign the following twin towns of Hamburg to their respective countries.

	Germany	USA	Japan	France	Nicaragua
Marseille	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]	<input type="checkbox"/> [C]	<input type="checkbox"/> [I]
Dresden	<input type="checkbox"/> [C]	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]
Osaka	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]	<input type="checkbox"/> [C]	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]
León	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]	<input type="checkbox"/> [C]
Chicago	<input type="checkbox"/> [I]	<input type="checkbox"/> [C]	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]	<input type="checkbox"/> [I]

Figure 65: Matching Question: Editor View

With the option 'Scrambling' you can decide whether the horizontal or the vertical values will be mixed randomly, so that the correct answers do not end up diagonal from each other. If a random pairing is not enough, you can also mix the pairs using the 'Move answer up/down' icon in the question assistant.

Vertical Value:

Horizontal Value:

List of pairs:

- C: Marseille <=> France
- C: Dresden <=> Germany
- C: Osaka <=> Japan
- C: León <=> Nicaragua
- C: Chicago <=> USA

Scrambling: horizontally ▾

Buttons: Back, Next, Apply, Cancel

Annotations: "select pair" points to the list of pairs; "up" and "down" arrows point to the move icons.

Figure 66: Move Pairs

Please note that in both the online viewer and in the PDF, the horizontal values are inclined to the left by 45%, in order to aid readability and save space.



1.3 Assign the following twin towns of Hamburg to their respective countries.

	Nicaragua	Germany	France	USA
Japan				
Marseille	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dresden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osaka	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Léon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chicago	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 67: Matching Question: PDF -View

## 3.8. Integrating Images

You can display photos or graphics on exam sheets by adding them as images (image format: JPEG or PNG). Furthermore, you can use the media library to include audio and video files. For more information see chapter 3.10. "Integrating Audio and Video Files".

The media library, located in the 'Form Properties' menu in the VividForms Editor helps you to organize your images.

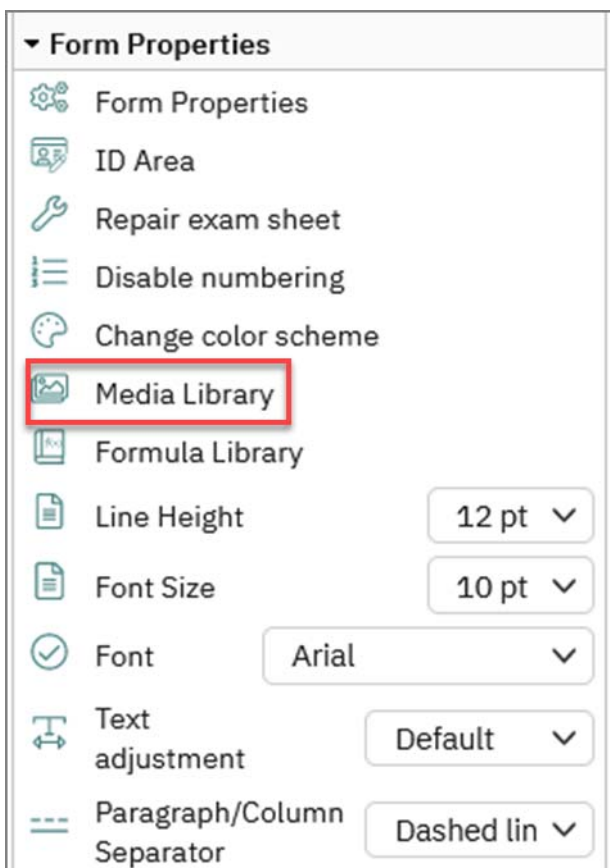


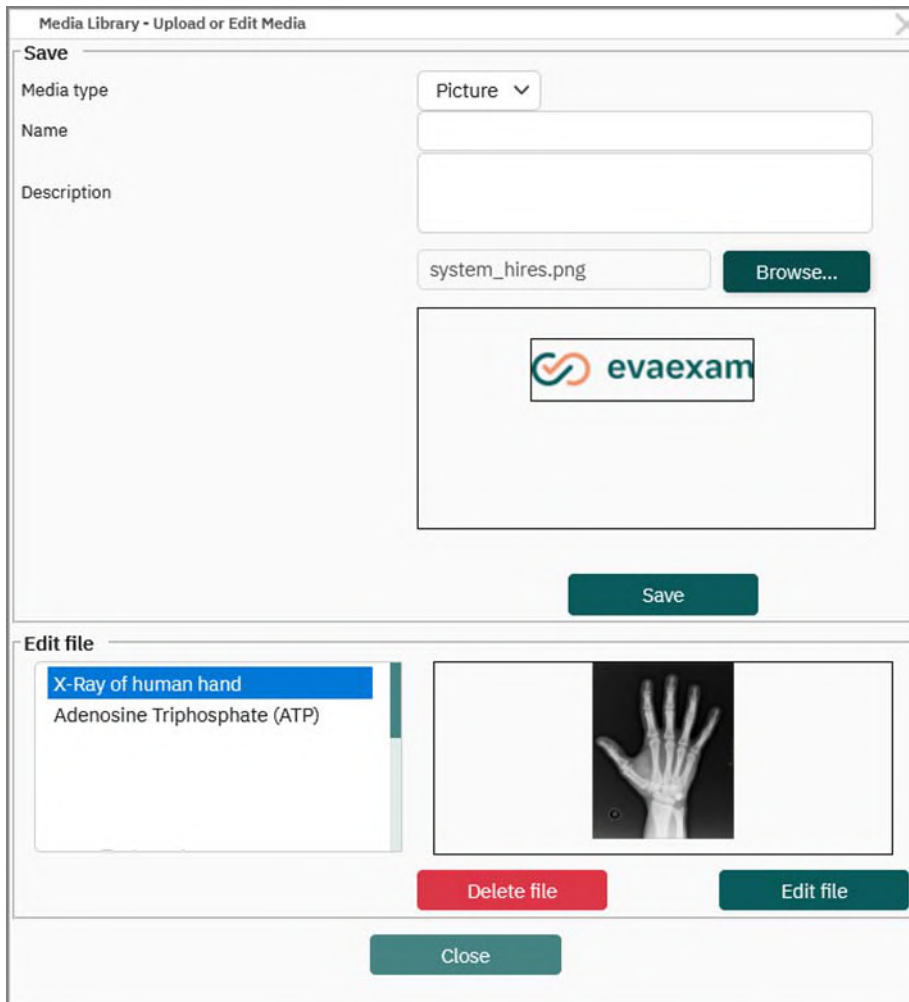
Figure 68: Media Library (Menu "Form Properties")

As soon as a picture is uploaded to the picture library, it can be used in other forms as well.

Click on the option “Media Library”. Then you see a new window where you get an overview of the available pictures and can add further ones.

To upload a picture you can search for it in your file system by clicking on [Browse]. Add a description for the picture. Then upload the picture by clicking on [Upload pictures].

It will thereby be added to the list of pictures and can be integrated into a questionnaire.



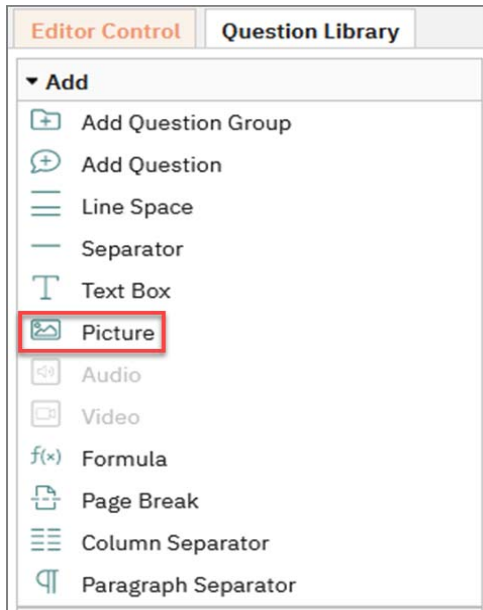
**Figure 69: Upload a Picture to the Library**

Images can be inserted in different ways:

- When creating a single choice, multiple choice or an open question in the question wizard. The image is then linked to the question and, if necessary, also moved with it. This is recommended when there is an affiliation between the image and the question, i.e. if the question refers to the image as a formula or a graph etc.
- As an independent image via the menu “Insert/Image”. The image is not linked to any other element. This is recommended when the image is used as a purely decorative element, i.e. the logo of the organization, or a 'smiley' etc.

As long as the picture library is empty, the option “Picture” in the menu “Add” is deactivated (gray option “Picture (library is empty)”) and also in the question wizard not picture can be selected.

As soon as you uploaded a picture to the picture library, the option is activated:



**Figure 70: Adding a Picture**

If you click on the option “Picture”, the picture assistant opens. The assistant will add the picture below the element currently selected on the questionnaire. If the image you need is not available in the image library, you can use the 'Upload New Image' button to add your image to the library.

Furthermore, in the picture assistant you can define the alignment of the picture (left-aligned/ centered/ right-aligned) as well as the scaling (in percentage of width of the page):

Integrate picture

**Select picture**

Please select a picture from the library ...

X-Ray of human hand

**Adenosine Triphosphate (ATP)**

Upload new picture

---

**Form Properties**

Alignment: left-aligned

☐ Scale image

Scaling in % of paragraph width: 0

Apply Cancel

**Figure 71: Inserting pictures**

In this case the picture will be added to the questionnaire left-aligned and with a scaling of 25 Percent:

Exam sheet: 1, Page: 3/3

EvaExam Exam Sheet Electric Paper

## 2. Basic Questions

Adenin

Thymin

Bindung

Bindung

Guanin

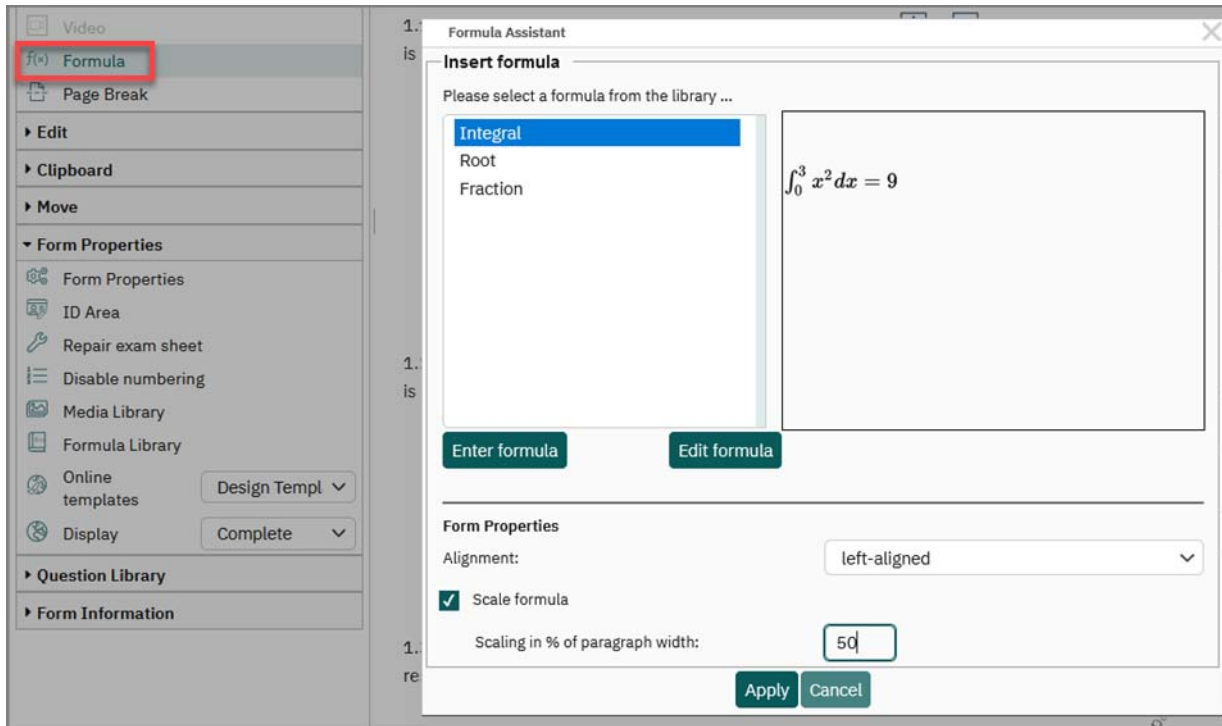
Cytosin

**Figure 72: Preview of the Picture**

If an image is linked to a question, the “Centered” function is not available.

### 3.9. Formula Editor

The VividForms Editor in evaexam contains a formula editor which can convert LaTeX and MATHML code into formulas. The formulas created in this way are saved as images in the formula library in the VividForms Editor. Such formulas can then be added to single choice, multiple choice, true false, k-prim and open questions. Formulas can also be placed in the exam sheet independently of questions. The formula assistant opens after “Add/Formula” is clicked.



**Figure 73: Formula Assistant**

In the formula assistant, a formula from the library can be selected, processed, or added to the library.

*Example:*

*The formula for a parabola should be added.*

*Firstly, the name of the formula is entered (here: Parabola), then a descriptive text (here: Basic formula for a parabola). Now follows the formula code, in this case written in LaTeX:*

$$f(x)=ax^2 + bx + c$$

*In the window underneath you can see which formula the editor is converting the entered code into.*

Formula Library - Create and edit formulas

**Enter formula**

Name: Parabola

Description: Basic formula for a parabola

Formula (LaTeX / MathML): 
$$f(x) = ax^2 + bx + c$$

Enter formula

Close

**Figure 74: Creating Formulas**

Click “Create formula” to save the formula in the formula library. It can now be scaled, aligned, and added to the desired position or question.

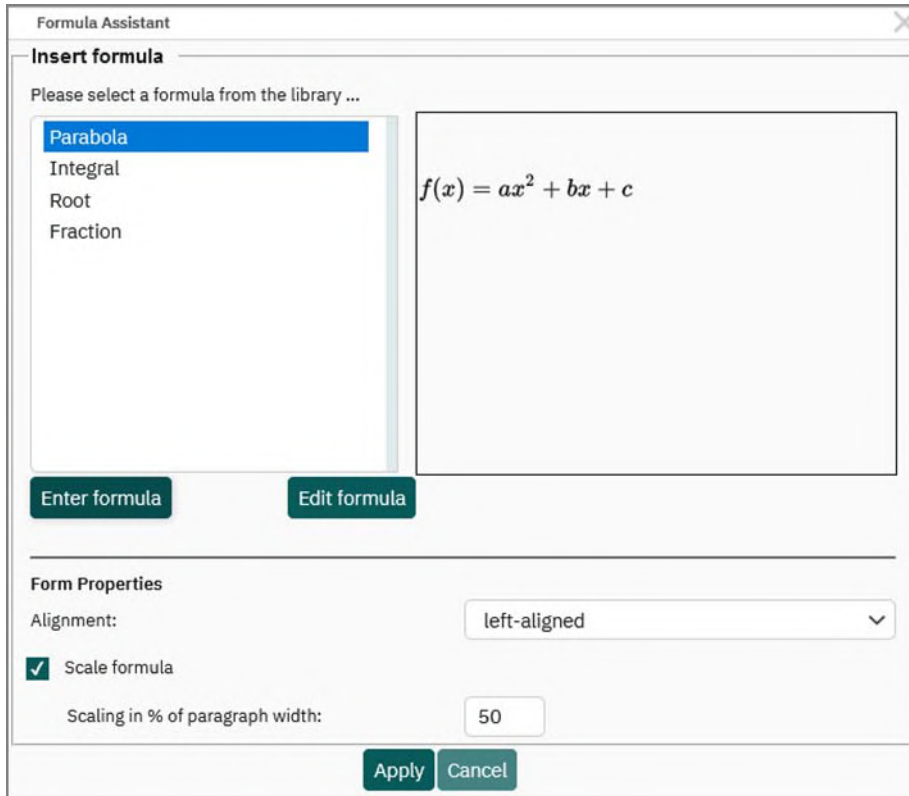


Figure 75: Insert Formula

### 3.9.1. Formula Library

In the VividForms Editor under the “Form Properties” menu a formula library is available to manage, edit, and create new formulas. In particular, formulas can also be deleted.



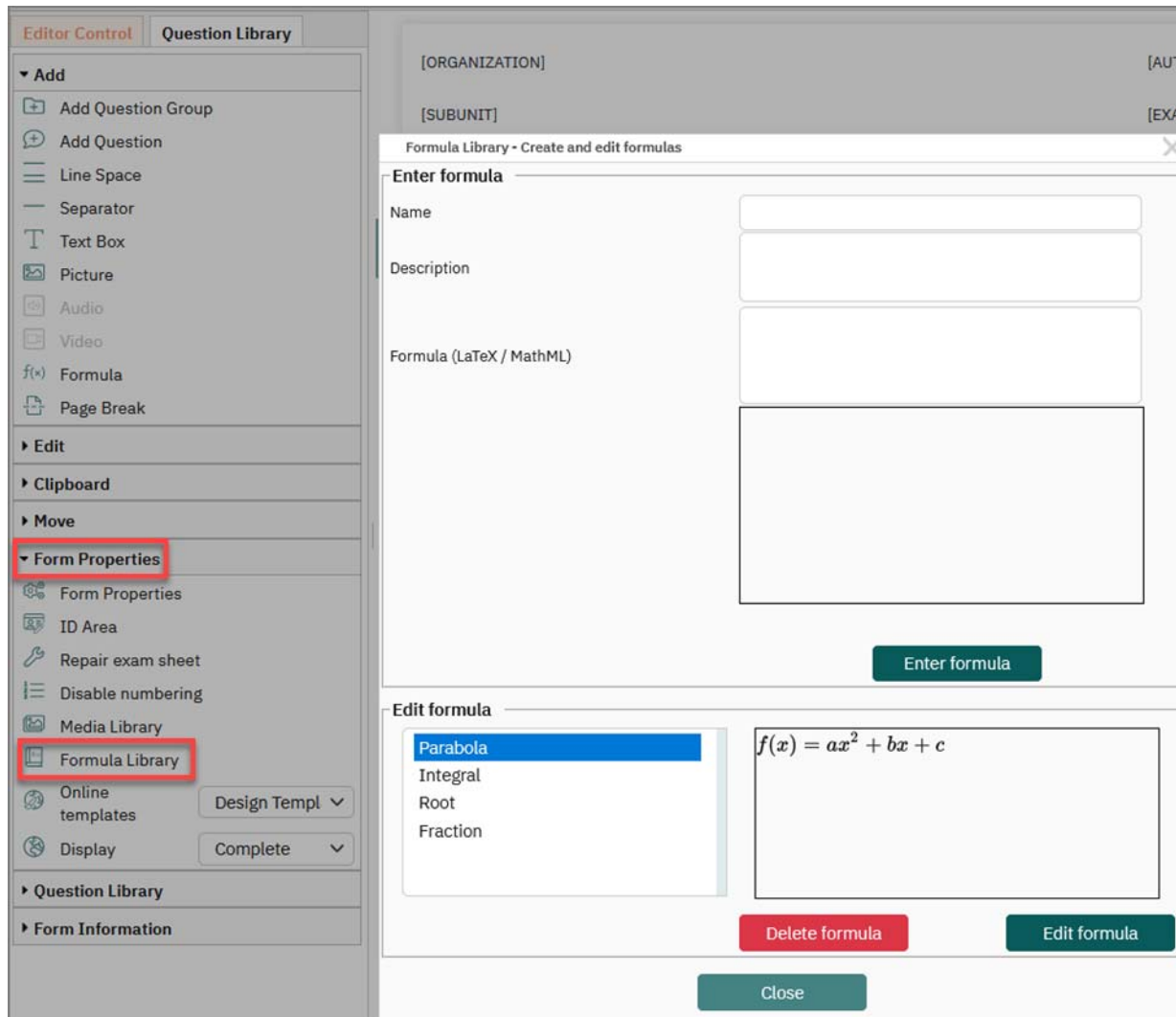


Figure 76: Formula Library

**Tip:**

The formula editor is based on the software “MathJack”. MathJack is open source software and is released under the Apache License 2.0.

Comprehensive documentation on the supported LaTeX and MathML characters and commands can be found at <http://docs.mathjack.org>.

### 3.10. Integrating Audio and Video Files

The media library in the editor allows you to integrate audio and video files into online exams. With an external hyperlink, you have the option of referencing media content and implementing it in your exam sheet in order to use it for your exam questions.

#### Technical Requirements

Audio as well as video files must be stored on a server that can be reached from the internet and cannot be uploaded directly in the questionnaire editor. It is not sufficient

to save them locally on your own computer. Furthermore, it is not possible to use the URL of a video from a video platform. If exams are conducted via the intranet, the server must be accessible from the intranet. Also, in this scenario, the audio and/or video files used in the exam must be stored on a server.

**Note:**

Please contact your in-house IT department to obtain access to a server where you can store the audio and video files. This also applies to customers who use a managed hosting system.

Depending on the quality of the desired video files, the required bandwidth may vary:

Information for media files	
Please note: If the media server that provides your audio / video file is not configured to be Safari-compatible, using the Safari browser under OSX / iOS can lead to incompatibilities. We recommend using the following browsers: Chrome, EDGE or Firefox.	
Recommended quality for bandwidth	
Quality	Approximate bandwidth required (per participant)
Audiofiles	<1 MBit/s
Video files	
360p (640x360px)	~1 MBit/s
480p (854x480px)	~1.5 MBit/s
720p (1280x720px)	1.5 - 4 MBit/s
1080p (1920x1080px)	2.5 - 6 MBit/s
2160p (3840x2160px)	15 - 20 MBit/s
Close	

**Figure 77: Information for Media Files**

If Safari is used to edit the media library, compatibility problems may occur if the server providing the audio and video data has not been configured to use the function. It is recommended to use the EDGE, Google Chrome and Mozilla Firefox browsers.

### Add Video Elements to the Media Library

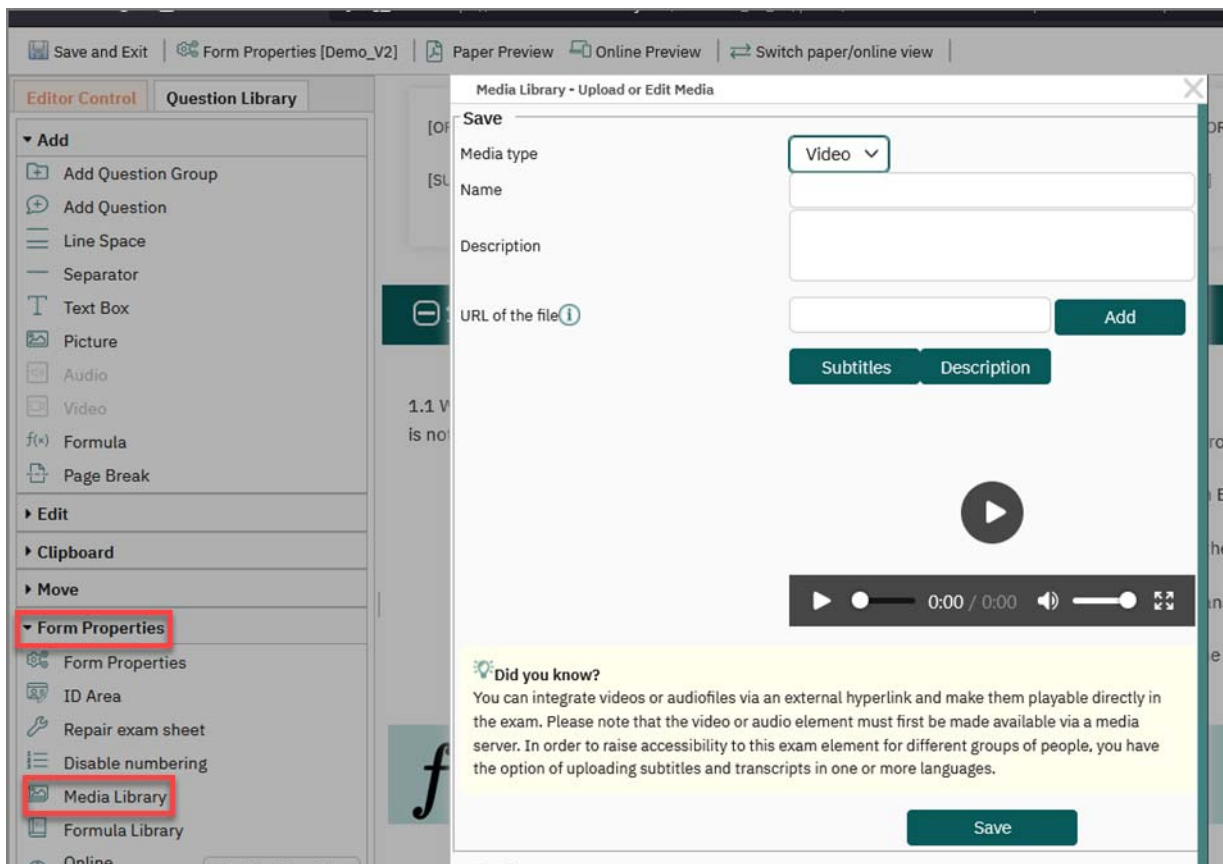
In addition, it is required that the exam type "Online Exams" is selected in the exam sheet wizard. Once the options "Paper Exams" or "Paper and Online Exams" have been selected, the use of the media library is no longer available.

The 'Exam Sheet Wizard' dialog box is shown with the 'Form creation information' tab selected. It contains the following fields and controls:

- Abbreviation:** A text input field.
- Title:** A text input field with a rich text editor toolbar (Bold, Italic, Underline, Bulleted List, Numbered List, Link, Unlink, Image) above it.
- Exam type:** A dropdown menu with 'Online Exams' selected. This field is highlighted with a red rectangle.
- Evaluation:** A dropdown menu with 'Evaluate as single exam' selected.
- Buttons:** 'Apply' and 'Cancel' buttons at the bottom.

**Figure 78: Exam Type “Online Exam”**

Audio and video files are stored as hyperlinks in the media library. You can access the library in the editor using the "Form Properties" menu:



**Figure 79: Access the Media Library**

To add a video to the library, select the "Video" file type.

**Note:**

Video files must be available in one of the following formats: MP4, WEBM, OGG.

First select the media type and assign a name and, if necessary, a description text. Also enter the URL of the desired file:

Media Library - Upload or Edit Media

**Edit file**

Media type: Video ▾

Name: Earth

Description: Earth

URL of the file ⓘ: <https://dokuserver.lab.evasys.c> **Add**

**Subtitles** **Description**

**Did you know?**  
You can integrate videos or audiofiles via an external hyperlink and make them playable directly in the exam. Please note that the video or audio element must first be made available via a media server. In order to raise accessibility to this exam element for different groups of people, you have the option of uploading subtitles and transcripts in one or more languages.

**Apply**

**Close**

**Figure 80: Add Video File to Media Library**

To support accessibility, subtitles as well as a detailed description can be stored for video files. In the case of audio files, the description option is available. Further information on accessibility can be found in the section "Accessibility in exams with audio / video files"; p. 196.

### Add Audio Files to the Media Library

If you want to include audio files in the media library, note that the "Online exam" exam type must also be selected in the exam sheet wizard. Switch to the "Media library" in the "Settings" area of the editor control. Select the "Audio" media type here. In addition to the name and the optional description text, enter the URL that references the desired file.

#### Note:

Audio files must be available in one of the following formats: MPEG, OGG; WAV.

Media Library - Upload or Edit Media

**Edit file**

Media type: Audio

Name: Bird Sounds

Description:

URL of the file: <https://dokuserver.lab.evasys.c> **Add**

**Description**

0:00 / 0:06

**Did you know?**  
You can integrate videos or audiofiles via an external hyperlink and make them playable directly in the exam. Please note that the video or audio element must first be made available via a media server. In order to raise accessibility to this exam element for different groups of people, you have the option of uploading subtitles and transcripts in one or more languages.

**Apply**

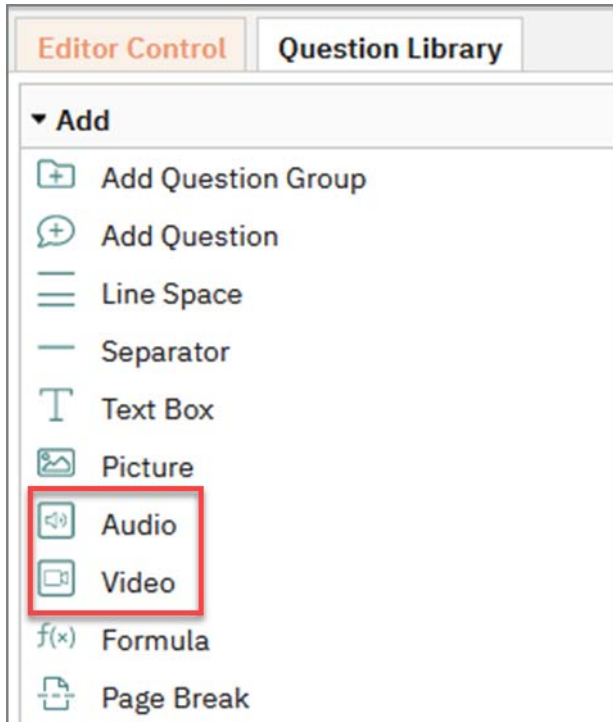
**Close**

**Figure 81: Add Audio File to Media Library**

You can upload a transcript to support accessibility, which can be read aloud using a screen reader. For more information on accessibility, see section "Display of an Audio File in an Online Exam", page 75.

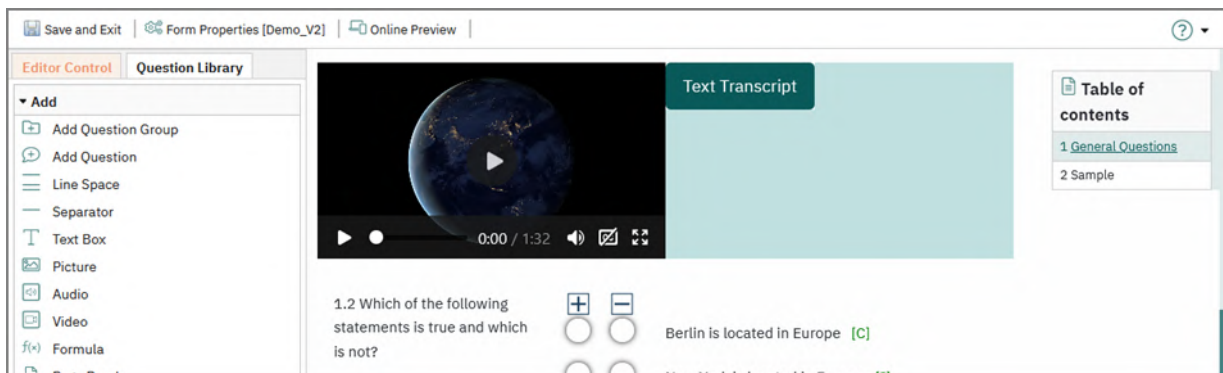
## Use Audio and Video Files

Once you have built your media library, you can use the "Audio" and "Video" elements in the editor control like any other element and insert them into your exam sheet:



**Figure 82: Audio and Video Element in the Editor Control**

Click on the element and drag and drop it onto your sheet or click once. In this case, the element is inserted below the active element:



**Figure 83: Display of a Video in the Editor**

Embedded videos are presented in an online preview as follows:

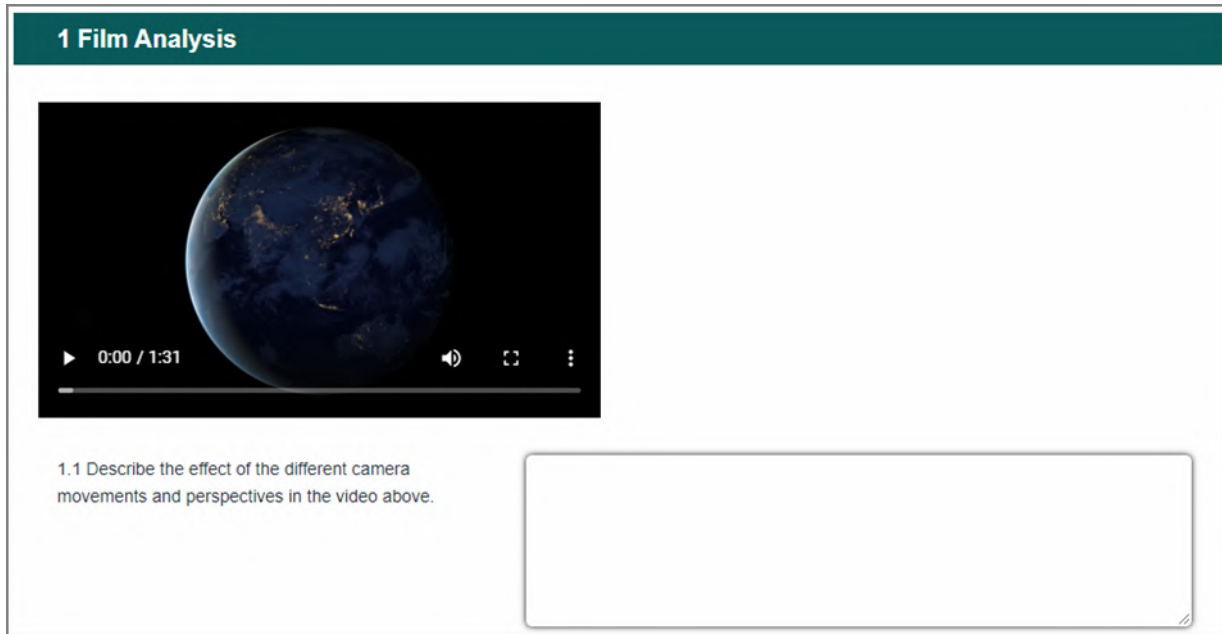


Figure 84: Display of a Video File in an Online Exam

Audio files are represented in an online exam as follows:

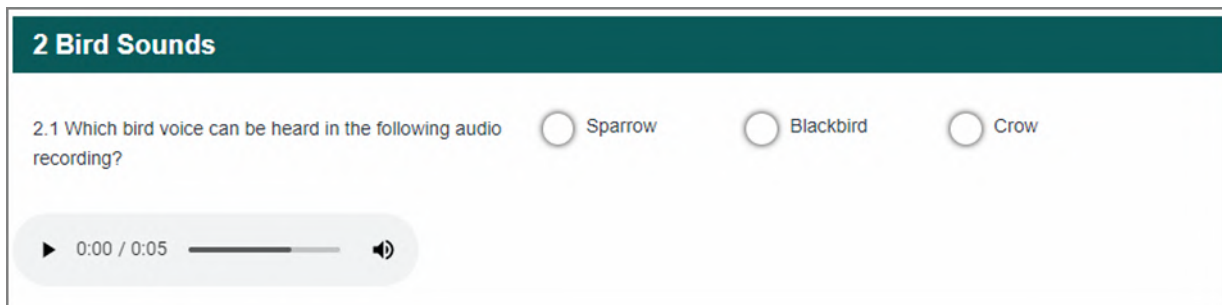


Figure 85: Display of an Audio File in an Online Exam

### Accessibility in Exams with Audio and Video Files

To support accessibility in exams which include audio and video files, both subtitles and transcripts for description can be provided.

#### Note:

Please note that the WCAG logo is automatically removed from the footer of the template used in the case of exams sheets with audio and video files. This also applies if subtitles and transcript have been set up for the test.

If you want to add subtitles to a video file, click the blue [Subtitle] button. The following setting options are available:



Media Library - Upload or Edit Media

**Edit file**

Media type: Video

Name: Earth

Description: Earth

URL of the file: <https://dokuserver.lab.evasys.c> **Add**

**Subtitles** | Description

URL to subtitle file: <https://exampleserver.com/me>

Language of the subtitles: English

Code as per ISO 639-1: English - en **Add**

List of all subtitles: English **Remove**

**Did you know?**  
You can integrate videos or audiofiles via an external hyperlink and make them playable directly in the exam. Please note that the video or audio element must first be made available via a media server. In order to raise accessibility to this exam element for different groups of people, you have the option of uploading subtitles and transcripts in one or more languages.

**Apply**

**Close**

**Figure 86: Subtitles Settings**

First enter the URL to the file that provides the subtitles. The supported format is called "VTT". You can open and edit VTT files with a common text editor, e.g. Notepad.

Enter the relevant language in the input field "Language of the subtitles". This information is later visible as "Language" in the video.

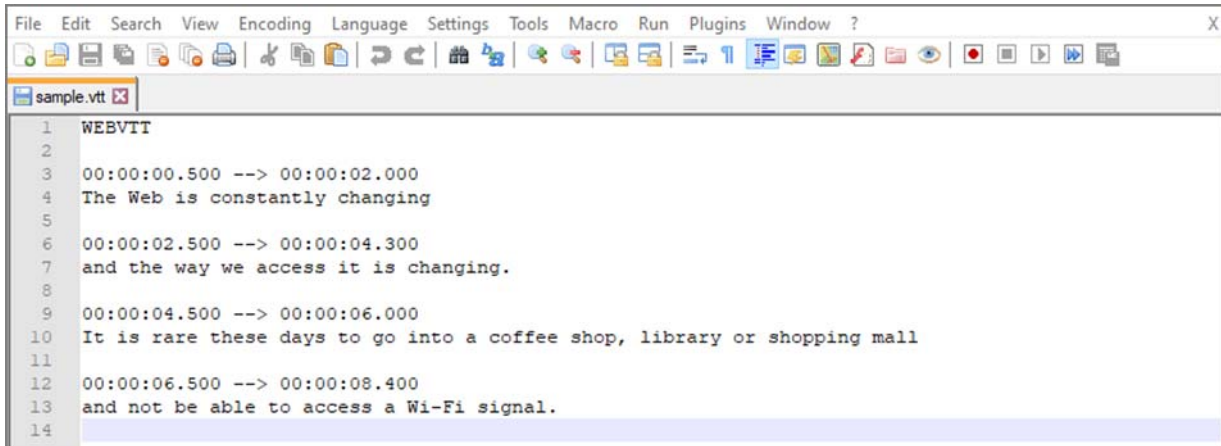
The language code according to ISO 639-1 must then be entered so that screen readers can later correctly identify which language it is.

By activating the [Add] button, the language is taken over and added to the "List of all subtitles" drop-down field.



To create a VTT file, open a text editor. Please note the correct structure of this file. The formatting of the timestamps must be kept as follows: Hours:Minutes:Seconds.Milliseconds

Below the time stamp, enter the text that you want to be displayed. Make sure to insert a blank line between each entry (time stamp and inserted text) and a blank line at the end of the file.



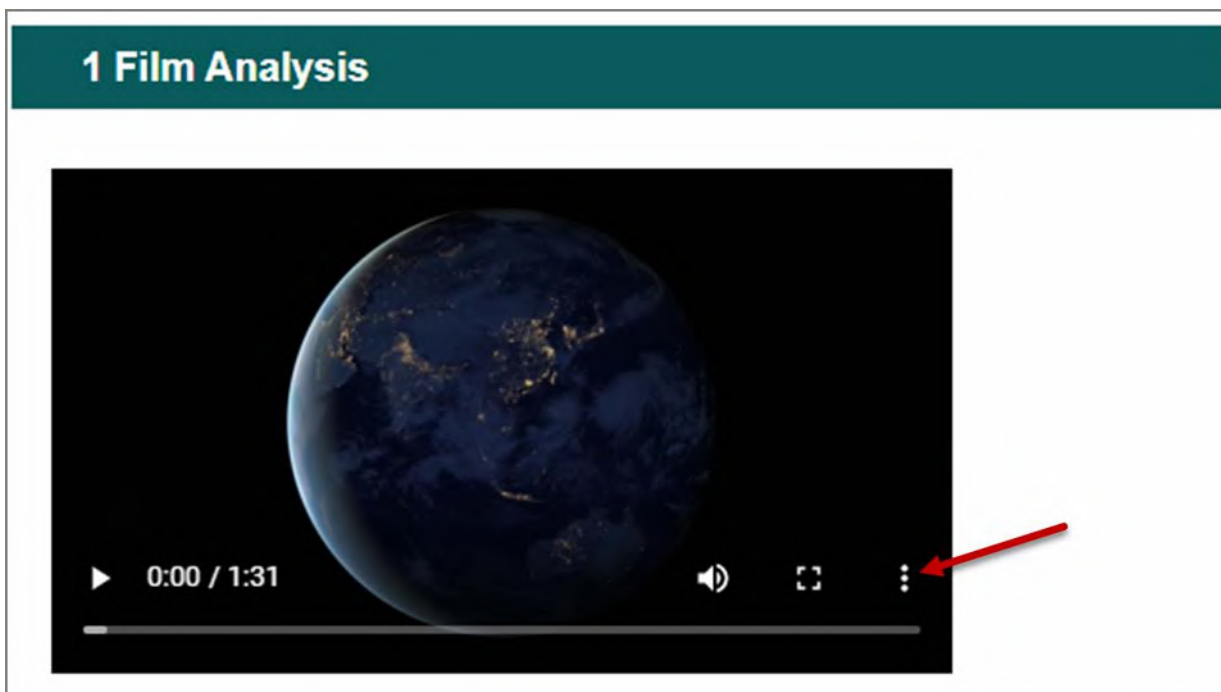
```

1 WEBVTT
2
3 00:00:00.500 --> 00:00:02.000
4 The Web is constantly changing
5
6 00:00:02.500 --> 00:00:04.300
7 and the way we access it is changing.
8
9 00:00:04.500 --> 00:00:06.000
10 It is rare these days to go into a coffee shop, library or shopping mall
11
12 00:00:06.500 --> 00:00:08.400
13 and not be able to access a Wi-Fi signal.
14

```

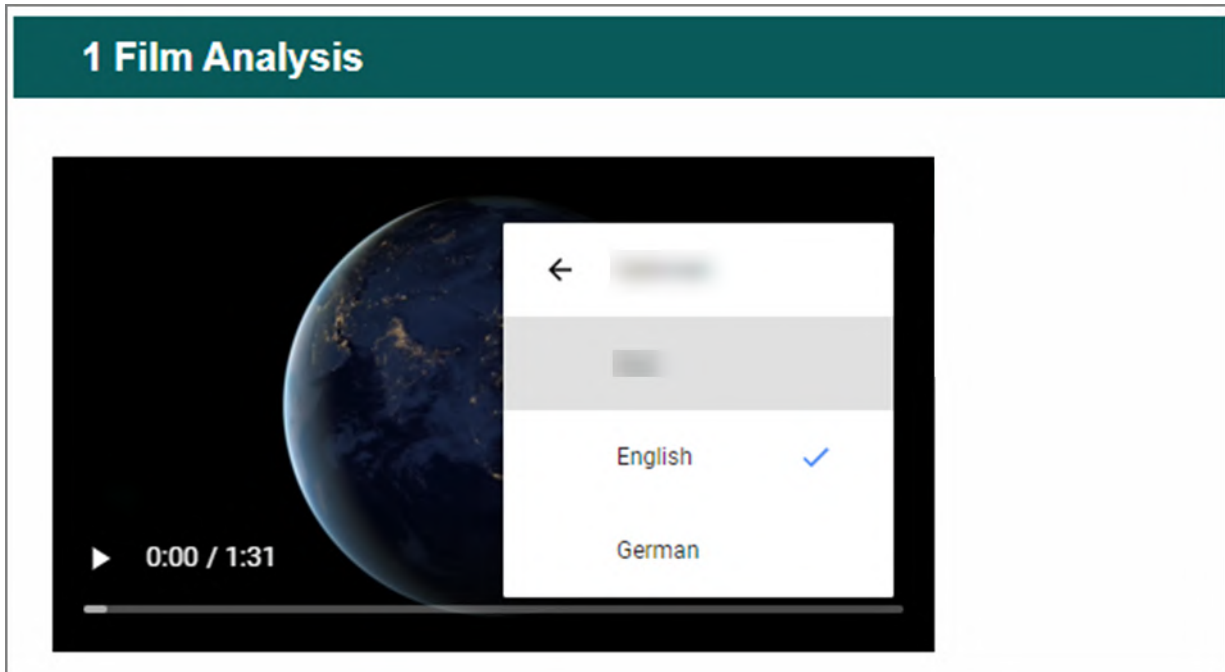
**Figure 87: Example of a VTT File**

Once the finished VTT file has been saved on the server and stored in the media library for the respective video, participants can use subtitles. Clicking on the three dots opens the advanced menu:



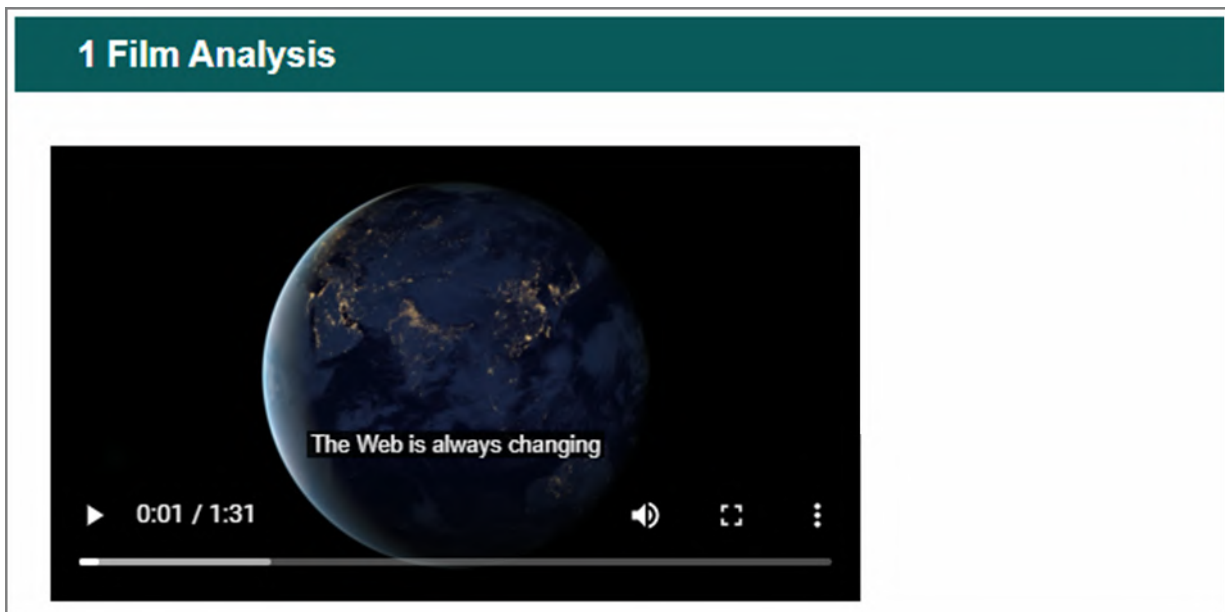
**Figure 88: Advanced Menu of the Video Player**

Participants can then activate the "Subtitles" option and choose between the available subtitles:



**Figure 89: Select available Subtitles**

Once subtitles are selected, they will appear in the video:



**Figure 90: Display of Subtitles**

If you want to add a transcript to audio and video files, first click the [Description] button. Again, in the case of description files, you must first store the URL that references the desired file. Please also make sure that the file is located on a server that can be reached from the Internet. The description file can be created in either PDF or HTML format. Enter the language of the file and confirm the information with the help of the [Add] button.

Media Library - Upload or Edit Media

**Edit file**

Media type: Video

Name: Earth

Description: Earth

URL of the file: <https://dokuserver.lab.evasys.c> Add

Subtitles Description

URL to description files: <https://exampleserver.com/me>

Language of the description file: English Add

List of description files: English Remove

0:00 / 1:32

**Did you know?**

You can integrate videos or audiofiles via an external hyperlink and make them playable directly in the exam. Please note that the video or audio element must first be made available via a media server. In order to raise accessibility to this exam element for different groups of people, you have the option of uploading subtitles and transcripts in one or more languages.

Apply

Close

**Figure 91: Add a Description**

Participants in an exam are now given the option to open a description file. This file can be read aloud by screen readers or serve as support for persons with hearing disabilities:

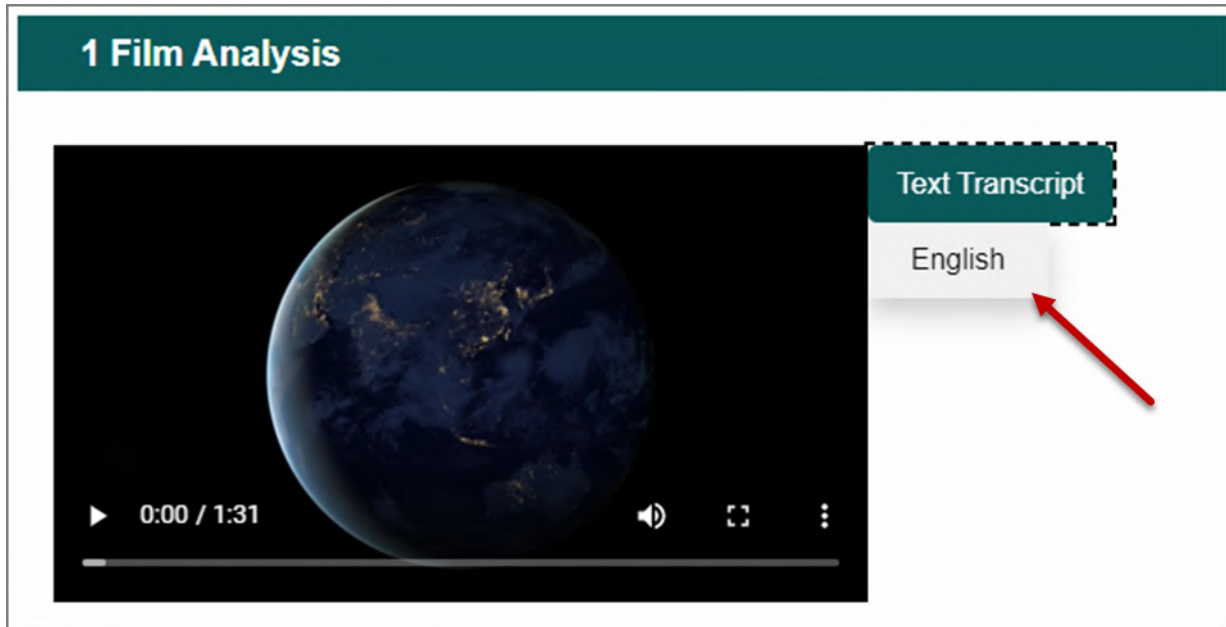


Figure 92: Access Description

### 3.11. Using the Question Library

In the VividForms Editor you can directly access a question library which allows you to quickly and easily build up your exam sheets. Each examiner manages his/her own question library. If required, your own question library or parts of your own question library can be made available to other examiners (see chapter 13.2.2. "Share Question Groups").

The question library can be built up directly in the VividForms Editor or it can be managed outside the Editor via its own interface (see chapter 13.2. "Question Library").

We recommend to add all exam questions to the library or take them from the library when creating an exam sheet, as only questions which are connected to the question library can be used for the so-called item analysis. With the help of the item analysis difficulty and discrimination values can be calculated based on exam results. For further information see chapter 13.1. "Item Analysis".

All important functions of the question library can be found in the correspondent menu in the Editor control. The tab "Add from question library" at the right side of the Editor control allows you to comfortably draw questions from the library onto the sheet.

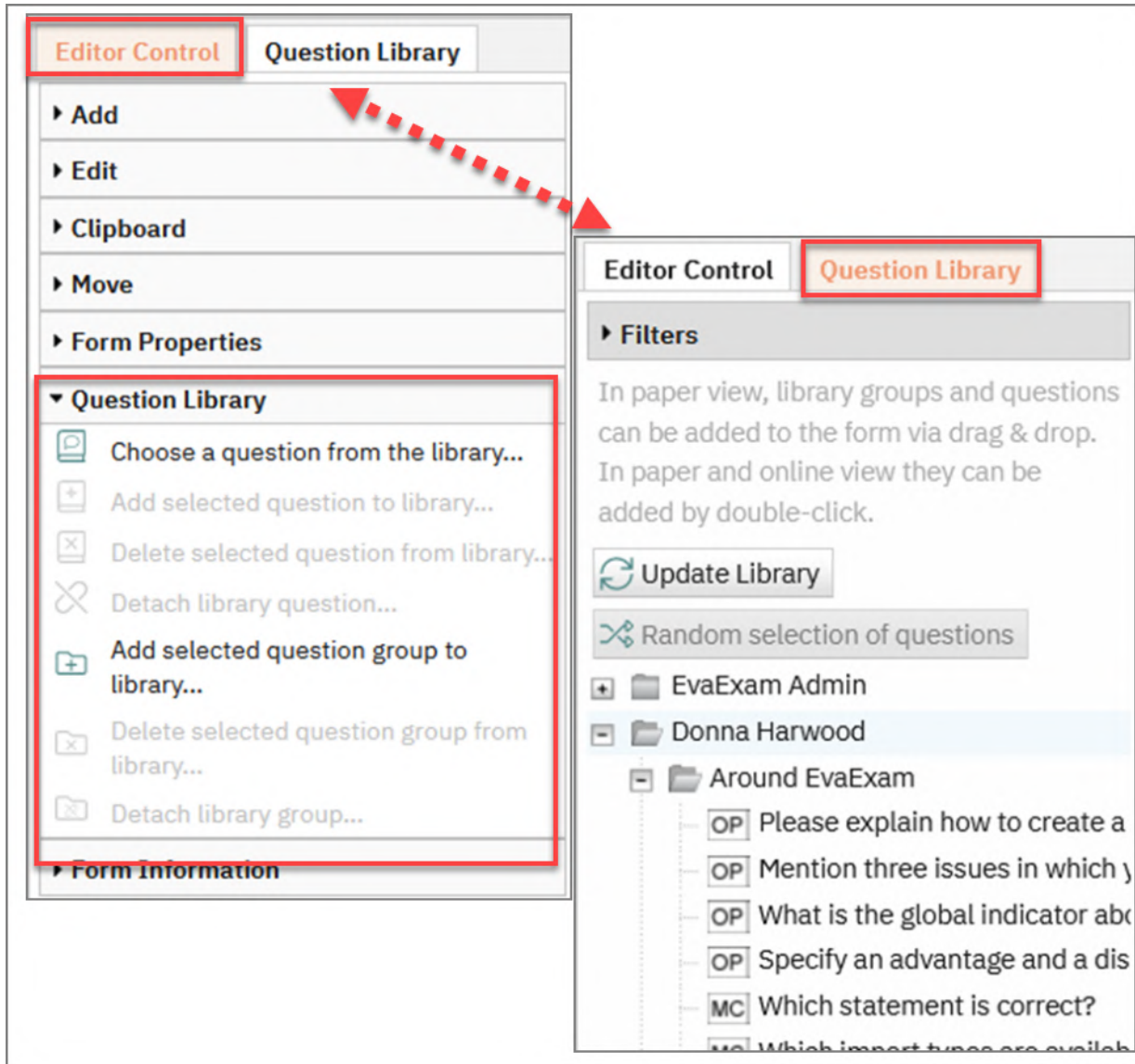


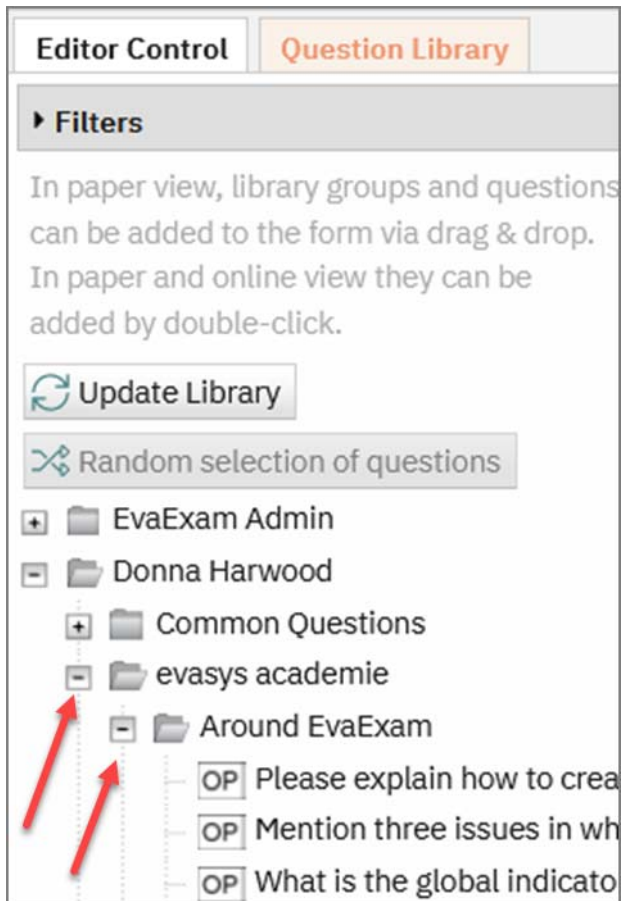
Figure 93: Question library in the VividForms Editor

### Add Questions from the Library

Select the option “Select a question from the library” in the Editor control or click the tab “Add from question library”. A tree view opens showing all groups and questions which are contained in the library. The layers can be opened and closed by clicking on the +/- button.

You can select whole groups or single questions and copy them to the form with the help of drag & drop. By pressing the Ctrl key when selecting questions you can select multiple questions at a time and draw them onto the sheet.

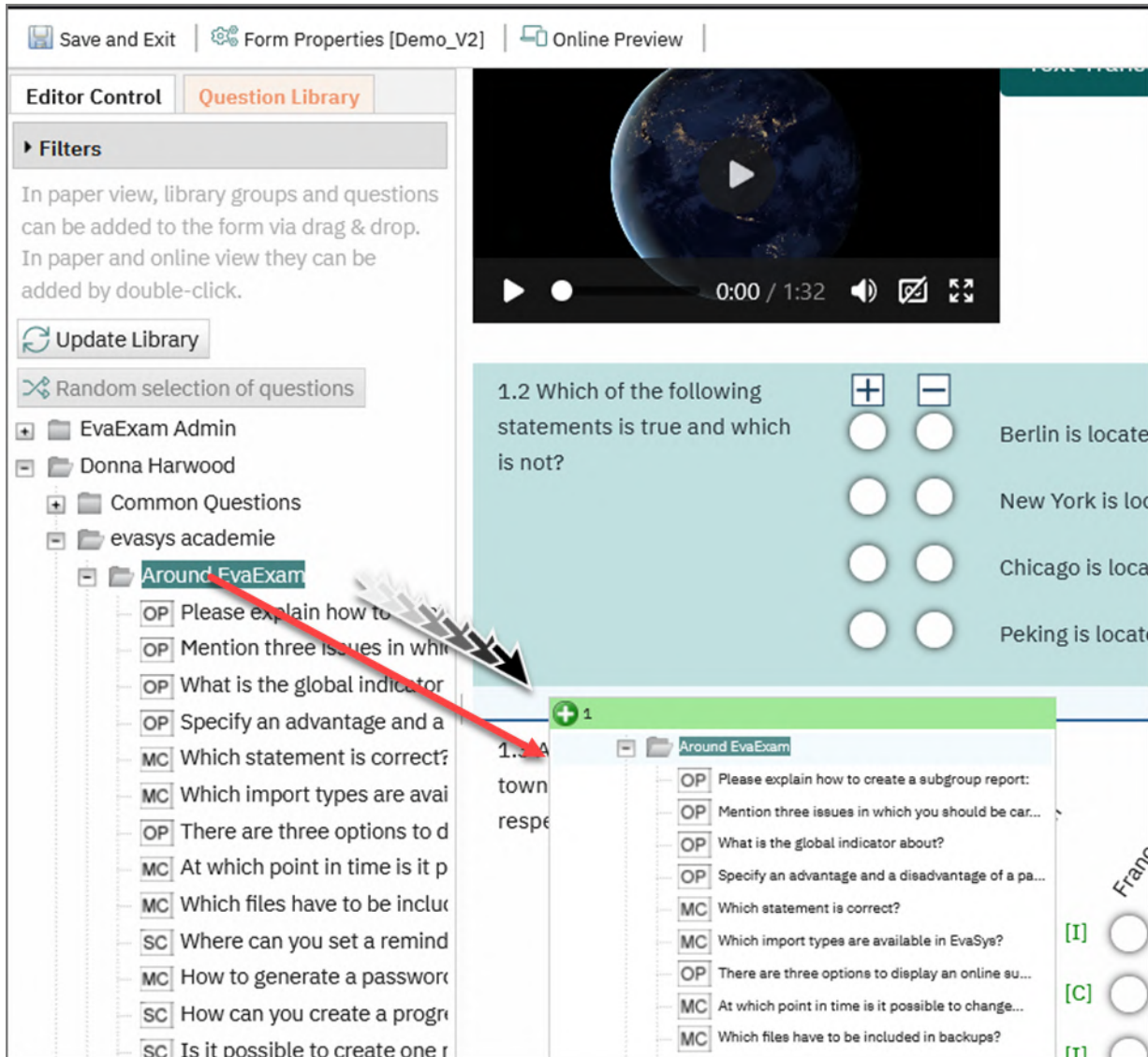
Please keep in mind that also questions from the library have to be assigned to a question group. If you do not drag a whole group onto the form but only single questions you have to add them to an existing group on the sheet. Please also note that you cannot drag a parent group onto the form (in the example above the group City Knowledge), but only groups located on the lowest level.



**Figure 94: Question Library: Show Layers**

A green bar marked with the icon “+” indicates that a question or question group can be added to the form. A horizontal line marks the insertion point on the sheet.



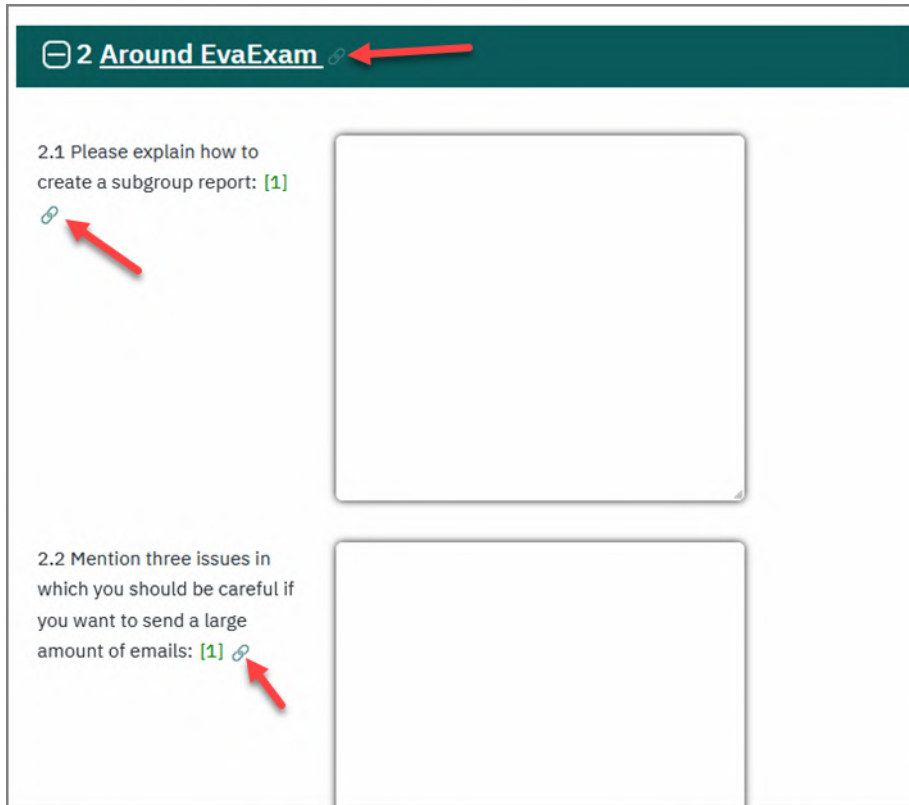


**Figure 95: Add a Question Group with the Help of Drag & Drop**

If an element cannot be added to the sheet, the bar is displayed in red and marked with a red icon “x”.

Questions which have been added from the library are write-protected, i.e. you cannot change these questions. You can recognize library questions by a small symbol on the left side of the work sheet.





**Figure 96: Library question on the exam sheet**

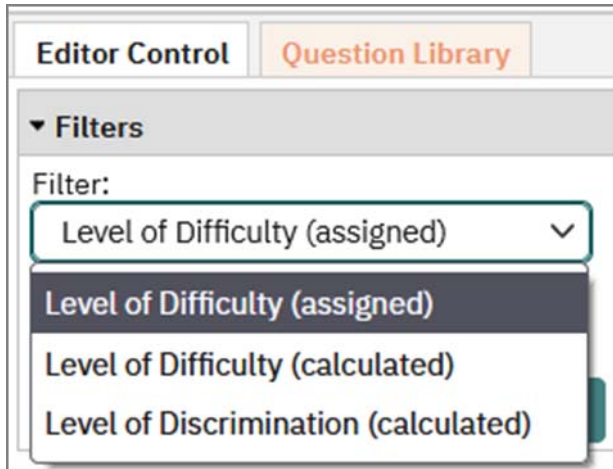
If you want to edit a library question on the exam sheet, you have to detach it from the library (see below chapter "Undoing the Connection between a Question and the Library"). However, you should avoid doing so, because otherwise the question on the sheet will not be available for item analysis.

### Filter within the library

Within the question library you can filter according to three different criteria:

- Level of Difficulty (assigned): The level of difficulty you have manually assigned when creating a question (values 1-5)
- Level of Difficulty (calculated): The level of difficulty calculated automatically during item analysis
- Level of Discrimination (calculated): The level of discrimination calculated automatically during item analysis

The different filters can be combined.



**Figure 97: Filter rules**

Select a filter and click the [+] icon. With the help of the sliders you can now select a specific level of difficulty and correlation or a range of difficulty and correlation. In the example below, a difficulty range of 1-2 has been selected. After clicking [Apply], only questions of the selected difficulty are displayed in the tree view.

**Editor Control** **Question Library**

▼ **Filters**

Filter:  
Level of Difficulty (assigned) ▼

+

Level of Difficulty (assigned):

◀ ◻ ◻ ◻ ◻ ◻ ▶

1 2 3 4 5

Apply Undo all

In paper view, library groups and questions can be added to the form via drag & drop. In paper and online view they can be added by double-click.

↻ Update Library

✂ Random selection of questions

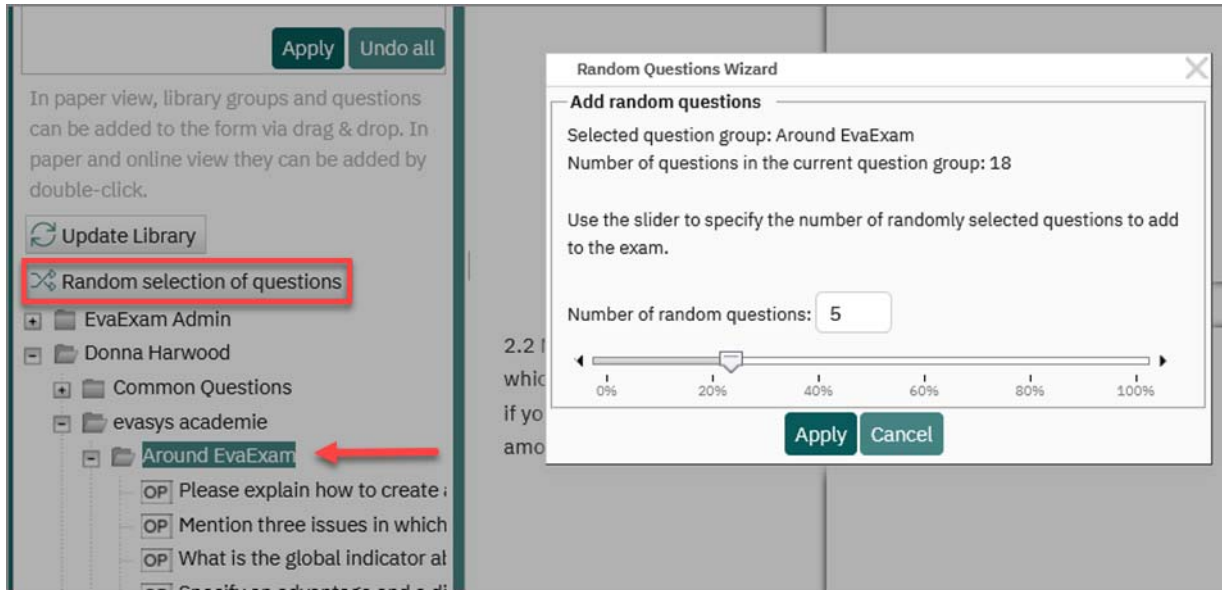
- + EvaExam Admin
- Donna Harwood
  - + Common Questions
  - evasys academie
    - Around EvaExam
      - OP Please explain how to create
      - OP Mention three issues in which
      - OP What is the global indicator at
      - OP Specify an advantage and a di

**Figure 98: Filter Level of Difficulty**

## Random Selection of Questions

With the help of the question library you can create a randomly generated questionnaire based on library questions. If you have set filters for difficulty and discrimination these will be considered in the question selection.

Select a question group on the basic level and click the button [Random selection of questions]. Enter the absolute number of questions which are supposed to be added to the sheet or use the slider to select a specific percentage of questions from the question group. After clicking [Apply] the question group and questions will be added to the sheet.

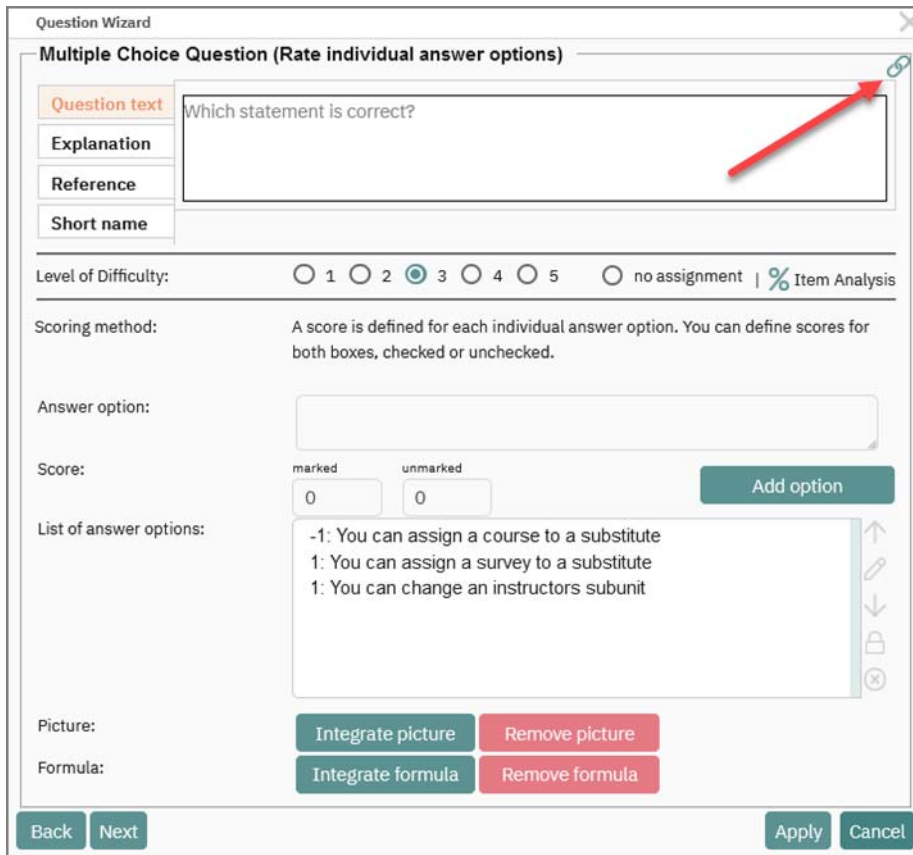


**Figure 99: Select random questions**

### Undoing the Connection between a Question and the Library

You cannot modify questions or chapters from the library. You will see this by the gray shading of the selection options in the properties dialog as well as by the library symbol.

If you would like to edit a question from the library you must first undo the connection to the library by using the option “Detach library question...”. The question can then be edited again.



Question Wizard

**Multiple Choice Question (Rate individual answer options)**

**Question text** Which statement is correct?

**Explanation**

**Reference**

**Short name**

Level of Difficulty: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5 ☐ no assignment | % Item Analysis

Scoring method: A score is defined for each individual answer option. You can define scores for both boxes, checked or unchecked.

Answer option:

Score:  marked  unmarked

List of answer options:   
 -1: You can assign a course to a substitute  
 1: You can assign a survey to a substitute  
 1: You can change an instructors subunit

Picture:

Formula:

**Figure 100: Question Wizard with a locked Library Question**

If you want to edit a question from the library on your current exam sheet, you have to disconnect it from the library. To do this, select the question or group on the form and click on “Detach library question” or “Detach library group” in the Editor Control, section “Question Library”. You can then edit the question or the question group with all questions contained therein.

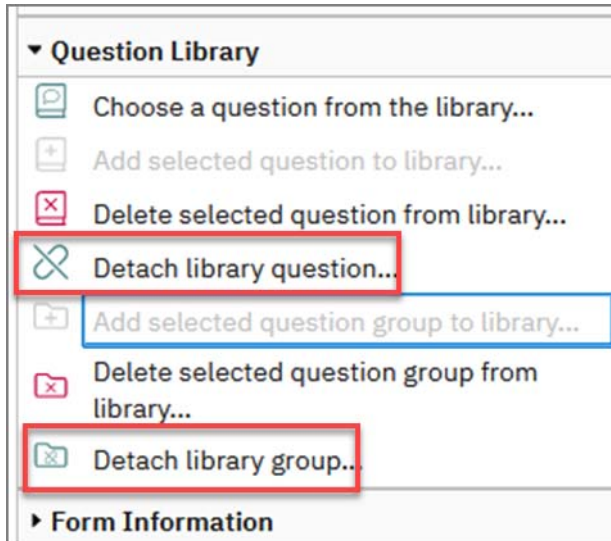


Figure 101: Detach Library Question or Group

### Note:

Questions, which have been detached from the library, can no longer be used for item analysis.

## Adding a Question to the Library

If you would like to add a question you have highlighted, click on the option “Add selected question to the library” under question library in the editor control.

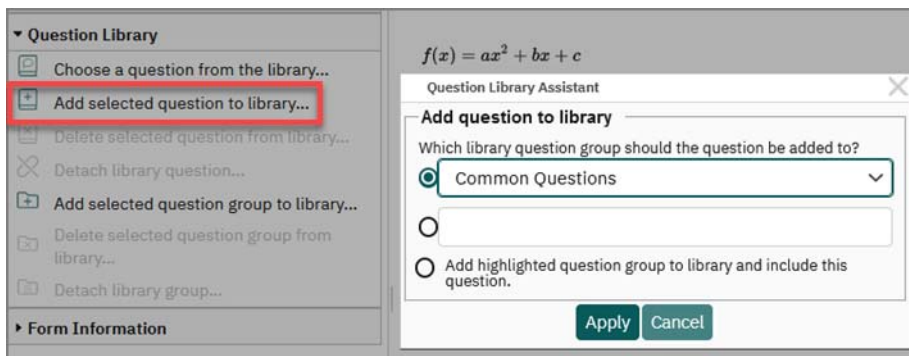


Figure 102: Add Question to the Library

## Include in an Existing Question Group

Select a group from the list and click on [Apply].

## Create a New Group

Select the second option and enter the name for the new group. If desired, you can select a parent group already available in the library and create the new group within this parent group. Click on [Apply].

### Add the Current (Highlighted) Group

Select the third option. The current group will be added as a new group in the library and the highlighted question will be added to this group. If desired, you can select a parent group already available in the library and create the new group within this parent group.

If you want to display the question groups and questions you have added to your library, click the button [Update Library]. The content of the library will be updated and displayed.

### Deleting a Question from the Library

With a click on the option “Delete selected question from library...” under “question library” you can delete the highlighted question from the library.

### Adding a Group to the Library





With a click on the option “Add selected question group to library...” the group you have highlighted will be entered as a new group to the library. All questions of this group will be entered to the library, too. That does not regard the elements of this group like pictures, pole labels or line spaces. These elements will not be entered.

### Deleting a Group from the Library

With the option “Delete selected question group from library...” in the editor control bar under “Question Library” you can delete the current group from the library.

## 3.12. Finishing the Sheet

When all the desired elements have been integrated into the sheet and all layout settings have been made, click on [Save and Exit]. The exam sheet now appears in the exam sheet list. It is now available at any time from the menu “Exam Sheets”.

Exam Sheet Management						
Abbreviation	Title	Page Number	Date	Engine		
Demo_V2	Demo for Documentation	4	19.05.2022	VF Editor		
Geographics_101		3	19.05.2022	VF Editor		

**Figure 103: Administration of Exam Sheets**

As long as no exam has been created with the exam sheet, it can be edited at any time via the pencil icon in the column “Edit”. If an exam has been created with this sheet, it is protected. No further changes can be made to the sheet.

In the “Preview” column, the sheet can be retrieved. If you have created a sheet with a separate answer sheet, both sheets can be retrieved as a preview via the PDF icons.

The exam sheet is marked with a question mark, the answer sheet with an exclamation mark.

The exam sheet in the exam administration is a template, it can be used for any number of exams. Please note, that the PDF files which can be retrieved in this menu are samples, which do not contain a barcode. Therefore, they cannot be used in exams and may not be scanned. The barcode is automatically inserted when the exam is created.

In the column "Answer Key" a sample answer sheet can be retrieved. This can be used for a briefing of the participants later. For exams with several variants, a separate sample solution can be opened for each variant.

Correct answers are designated with a green tick, and incorrect answers are designated using a red cross. Furthermore, any points given or subtracted for every answer, are shown.

**24P 2. Around EvaExam [Continue]**

2.4 Specify an advantage and a disadvantage of a password based survey.

**1P** Only to be filled out by examiner

	10	20	30	40	50	60	70	80	90	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> + 0.5
0	1	2	3	4	5	6	7	8	9	

**MC 2.5** Which statement is correct?

-1P ☒ You can assign a course to a substitute

1P ☒ You can assign a survey to a substitute

1P ☒ You can change an instructors subunit

**MC 2.6** Which import types are available in EvaSys?

1P ☒ CSV-Import

-1P ☒ Doc-Import

-1P ☒ XLS-Import

1P ☒ XML-Import

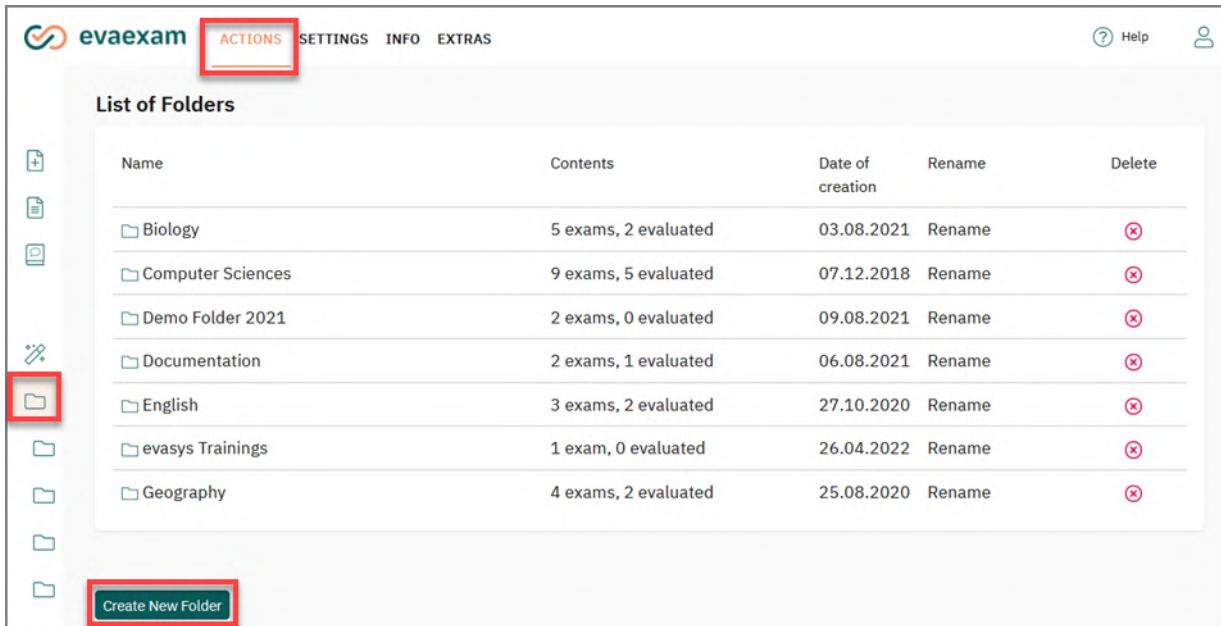
**Figure 104: Sample Solution**



## 4. Creating an Exam Folder

All exams are managed in exam folders. Before an exam can be created, an exam folder must be created.

To do this, click in the left context menu on “List of Folders” and then on [Create New Folder]:



**Figure 105: Create a New Folder for Exams**

A window appears with which to create the new exam folder. Enter the name of the folder and click [OK]. The folder now appears in the list of exam folders.

Create New Folder

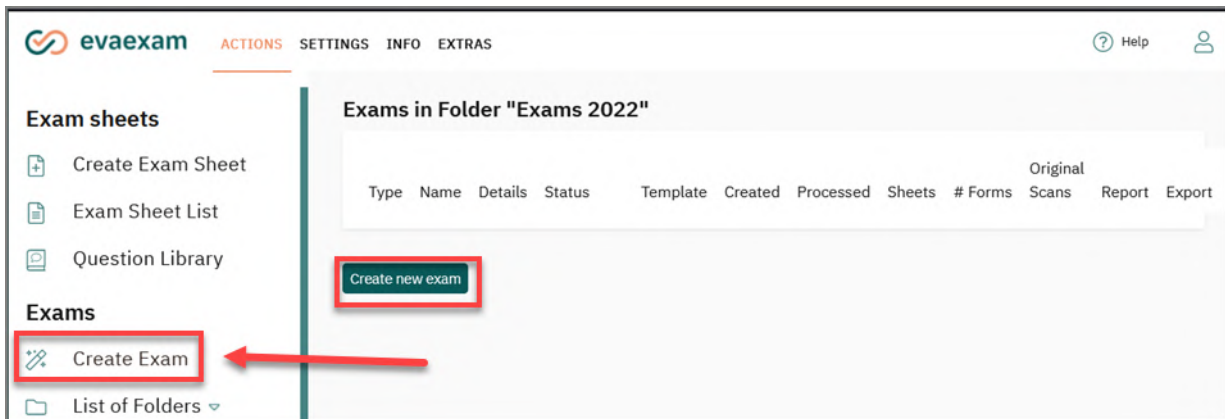
OK

Cancel

**Figure 106: Name the New Exam Folder**

## 5. Creating a Paper Exam - Default Procedure

In order to create a paper exam, click on [Create New Exam] in an open exam folder, or start the wizard by clicking [Create Exam] in the left hand menu.



**Figure 107: Generate a new Exam**

## 5.1. Create Exam - Folder

Create a folder by entering a folder name or select an existing folder to use and click on [Next].




The screenshot shows a dialog box titled "Create Exam - Folder". It contains two radio button options: "Create New Folder" (which is unselected) and "Use an existing folder." (which is selected). Below the "Create New Folder" option is a text input field. Below the "Use an existing folder." option is a dropdown menu showing "Computer Sciences" with a downward arrow. At the bottom left is a "Cancel" button, and at the bottom right are "Back" and "Next" buttons.

Figure 108: Choose or Create Folder

## 5.2. Create Exam - Exam

Now enter the name of the exam and select the type of exam: Paper Exam or Online Exam. Select Paper Exam and click [Next].

**Create Exam - Exam**  
Type in a name for your exam:  
  
Please select the type of exam:  

  
☒ Paper Exam


  
☐ Online Exam

Figure 109: Name of exam and type of exam

### 5.3. Create Exam - Type of Exam

Now select the type of exam you want to carry out:

**Create Exam - Type of Exam**

Please select the type of exam:

☒ Combined question and answer sheet

☐ Separate question and answer sheet

☐ Answer sheet only

☒ Use template

☐ generate dynamically

Cancel Back Next

**Figure 110: Select Type of Exam**

The following types are available:

- Combined question and answer sheet

This is the **default method** for flexible exams. The exam content is created in evaexam. All question types (open and closed) and comprehensive options for exam analysis (reports, item analysis) are available.

Questions and answer boxes are located on the exam sheet. The complete sheets are scanned and analyzed. The exam sheet must have been created beforehand with the VividForms Editor, as described above.

- Separate question and answer sheet

This method can be used for flexible and standardized exams. The exam content is created in evaexam. Only a restricted number of closed question types is available, but for these question types there are comprehensive options for exam analysis (reports item analysis).

Questions and answer boxes are located on separate sheets. After the exam has been carried out, only the answer sheets have to be scanned. The exam sheet has to be created beforehand with the VividForms Editor, as described above.

- Answer sheet only (if activated by the administrator)

This method is only available if it has been activated in the evaexam settings by the administrator. It is a simplified method for standardized exams. The exam con-

tent is created outside evaexam. No question sheet has to be created in the Vivid-Forms Editor, the exam content is managed outside evaexam.

There is only one question type available (single choice), and the options of exam analysis are restricted (only export of raw data and scores).

When selecting "Use template" you can a predefined answer sheet which can contain up to 100 exam questions with up to five answer options. When selecting "generate dynamically" you can create a custom answer sheet and define the number of questions yourself.

The combined question and answer sheet is the most common procedure. It is highly recommended because of the wide range of exam and analysis features. It will be explained in detail in the next chapters.

The additional procedures will be explained thereafter in separate chapters.

For further information on exams with separate question and answer sheet please refer to chapter 6. "Paper exam with separate question and answer sheet".

For further information on exams with answer sheets only please refer to chapter chapter 7. "Paper exam with answer sheet only".

## **5.4. Create Exam - Participant Capturing**

Select the type of participant capturing on the sheet:

- Entry of examinee-ID by participants

The exam sheet does not contain participant information. The exam participants have to identify by manually entering their examinee-ID. In case of paper exams, a matrix field in the header section of the sheet has to be used to fill in the ID. In case of online exams, an entry box will be shown before the exam starts.

This procedure can be especially recommended for large paper exams. As the sheets are not assigned to a specific person, you can easily share out the exam sheets to your participants. However, the participants should be instructed how to enter the examinee-ID so that the sheets are assigned correctly after scanning.

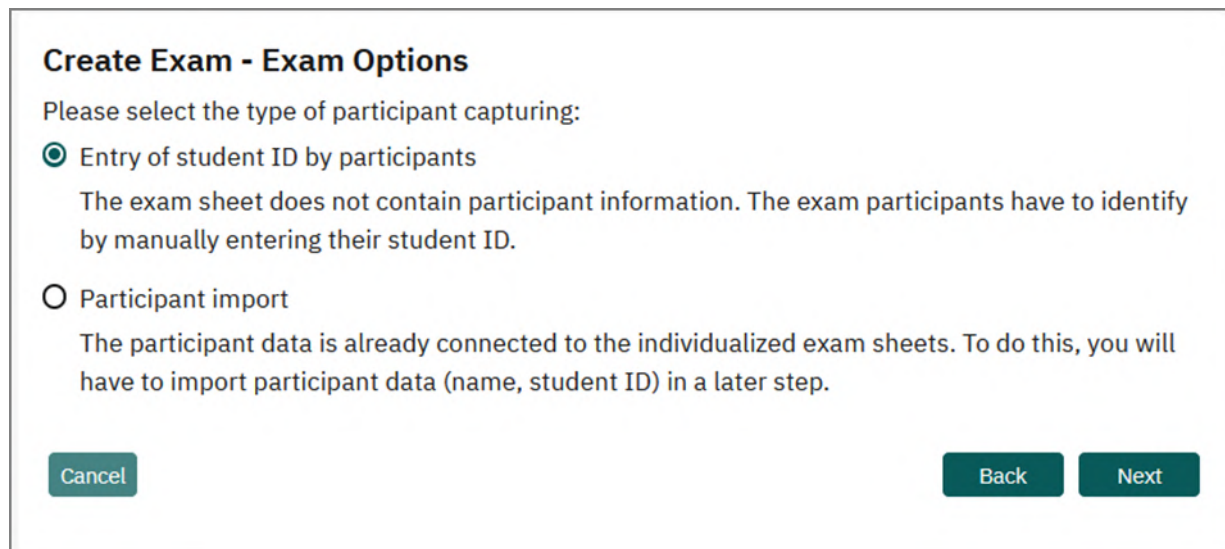
- Participant import

The participant data is already connected to the individualized exam sheets. To do this, you will have to import participant data (name, examinee-ID) in a later step. Please ensure that you have the participant data at hand.

In case of paper exams, the participant data can be shown on the exam sheet by means of placeholders. Please note that the exam sheet has to be prepared with placeholders beforehand. As an alternative, the matrix field can be automatically pre-filled with the examinee-ID.

In any case, when sharing out the exam sheets you have to ensure that the correct participant receives the correctly individualized sheet.

In case of online exams, participants do not have to identify any more. The PSWD is already connected to their examinee-ID. Click [Next].



**Create Exam - Exam Options**

Please select the type of participant capturing:

☒ Entry of student ID by participants

The exam sheet does not contain participant information. The exam participants have to identify by manually entering their student ID.

☐ Participant import

The participant data is already connected to the individualized exam sheets. To do this, you will have to import participant data (name, student ID) in a later step.

Cancel Back Next

Figure 111: Select the type of participant capturing

## 5.5. Create Exam - Assign Exam Sheet

Now choose the exam sheet.

If there is no exam sheet in the system available yet, you need to cancel the process and create one under “Actions/Create Exam Sheet”.


If you want to create a new one on the basis of an existing sheet, you first need to copy the original exam sheet in the exam sheet list and in the next step edit the copy. Exam sheets that have already been used in an exam can later no longer be edited in order to avoid inconsistencies. In this case you will first have to copy the sheet.

### Create Exam - Assign Exam Sheet

Please select an exam sheet:

Math101

▼



To be able to select your own exam sheet, the sheet has to be created beforehand in the menu "Actions" by clicking "Create exam sheet". If you have not yet created an exam sheet, please cancel the process and first create the sheet.

As an alternative, you can create your exam using only an answer sheet, provided this function has been enabled by the administrator. To do this, move two steps back in the wizard and select the option "Answer sheet only" when defining the type of exam.

Cancel

Back

Next

**Figure 112: Exam Sheet Selection**

Click [Next].

## 5.6. Create Exam - Versions

In this step, decide whether multiple versions of the exam sheet are required. With the help of the option "Create Versions", up to 10 differing versions of an exam sheet can be created. You can also determine how the questions or question groups should be mixed on the sheet.

The following options are available:

- Scramble the order of question groups
- Scramble the order of questions within a question group
- Scramble the order of answer options within a question (Fixed answer options are excluded, see section "Immobilize", page 33)
- Scramble the order of questions regardless of their question group affiliation

You can select one of these options or combine a number of these with each other.



### Create Exam - Exam Options

☒ Create Versions

The previously selected sheet has been changed for each version according to the options below.

Total number of exam sheet versions (incl. base exam sheet):

Options:

- ☐ Scramble the order of question groups.
- ☒ Scramble the order of questions within a question group.
- ☒ Scramble the order of answer options within a question.
- ☐ Scramble the order of questions regardless of their question group affiliation.

**Figure 113: Create Versions**

If you have placed a question group as text element at the start of the exam sheet in the form of an introductory text, then this initial text element will always be at the start position, and is excluded from the permutation. Furthermore, elements such as images, formulas, text boxes and other design elements like separators are generally excluded from scrambling. They will keep their fixed position on the sheet.

Thus it is possible to place complex tasks at the beginning of a question group, while mixing up the following questions to this task. In addition, line spaces or separators for structuring the exam can also be used and will not interfere with version creation.

Each version is marked (A, B, C etc.) in the header of the sheet. The number of exam sheets per version is automatically and evenly distributed over the number of participants, for example, with 3 versions and 15 participants, there will be 5 of each version, A, B, C, created.

The figure displays three overlapping exam sheet templates, labeled A, B, and C, representing different versions of the exam. Each template has a header section with the version letter (A, B, or C) and the page number (1/2). The templates are for 'evaexam' and 'evasys'. The content of the sheets is partially visible, showing fields for 'Sample Academy', 'Noah Peterson', 'City Knowledge Hamburg', and 'First name:'. There are also checkboxes for 'Mark as shown' and 'Correction'.

**Figure 114: Versions of an Exam Sheet**

Exam sheet A is the basic sheet, this means it shows the original structure of the first exam sheet created. The subsequent evaluation report as well as the raw data are always based on the structure of the basic sheet.

**Note:**

The use of versions may lead to a different length of pages in a questionnaire. The shifting of elements may cause additional pages, in particular if a two column layout is used.

It is recommended to avoid the usage of manual page breaks, because unnecessary and empty pages might be the consequence.

Leave enough free space at the end of the original sheet to avoid the creation of additional pages.

**Hint:**

In the presetting of your system (evaexam Settings) you can define that all exams (also exam versions) have the same number of pages (see section "Adjust page number for serial printing", page 15).

## 5.7. Create Exam - Print Exam Sheets

After clicking [Next], enter in the next step the number of participants and as such the number of exam sheets required.

The machine readable data on the answer form may be negatively affected by accidental and multiple corrections, incorrect information regarding the exam participant IDs, or, for example, the use of correction fluid.

In order to avoid unnecessary retouching, we recommend that you print approx. 10% more exam sheets than you have participants. If necessary, you can provide the spare sheets to your exam participants.

**Create Exam - Print Exam Sheets**  
Please enter the number of exam participants:   
**Hint:**  
The machine readability of the answer sheets can be severely impaired by multiple corrections, incorrectly entered student IDs or use of correction fluid.  
To avoid unnecessary rework please print about 10% more exam sheets than you expect exam participants and make these spare sheets available for your participants if required.  
  
Please also note the filling instructions in the documentation and explain it to your participants before starting the exam.

Figure 115: Number of Exam Participants

## 5.8. Create Exam - Finish

In the final step, the assistant will display a summary of the exam. You can check your choices and settings and by clicking on [Back], make corrections.

**Create Exam - Finish**

Please verify the data for the exam 'Mathematics Analysis 101'.

Folder:	Computer Sciences
Exam sheet:	Math101
Type:	Paper Exam: Entry of student ID by participants
Number of individualized exam sheets:	127

By applying the data the exam will be delivered as a PDF file download.

Cancel

BackApply

**Figure 116: Summary of the Exam**

Depending on the type of participant capturing you decided on at the beginning, after clicking [Next], the process continues in different ways.

If you haven't chosen "Entry of examinee ID by participants", it follows that the exam sheets for all participants are opened in a PDF file or, in the case of online exams, the PSWDs are made available as a PDF.

If you have chosen "Participant Import, you are forwarded to the participant administration where participant data is imported or must be stored manually.

## 5.9. Print Exam Sheets

### 5.9.1. Type of Participant Capturing: Entry of examinee-ID by participants

After confirming the exam summary, with a click on [Apply], the exam sheets will be downloaded. Depending on the administrator settings you will either download a PDF file containing the exam sheets for all participants (this is the default setting), or you will download a ZIP archive containing the exam sheets as separate PDF files.

The PDF containing the exam sheets for all participants could look like this:

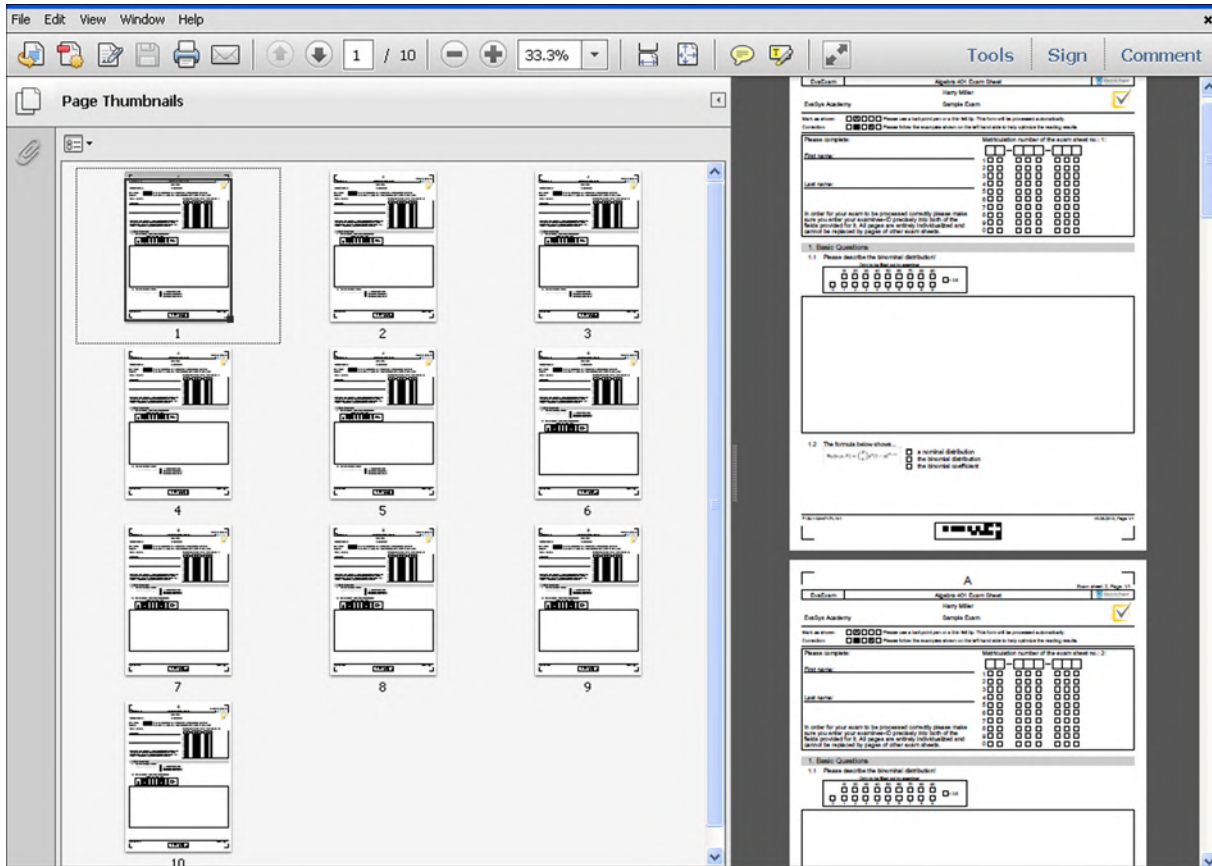


Figure 117: Overview of the Individualized Exam Sheets

Every page has an individual number (page link). This number appears on the first page of each sheet in the header area, above the examinee-ID:

Examinee ID of the exam sheet no.: 49:

1									

Figure 118: Individual Numbering in the Exam Sheet Header (Here: Exam Sheet No. 49)

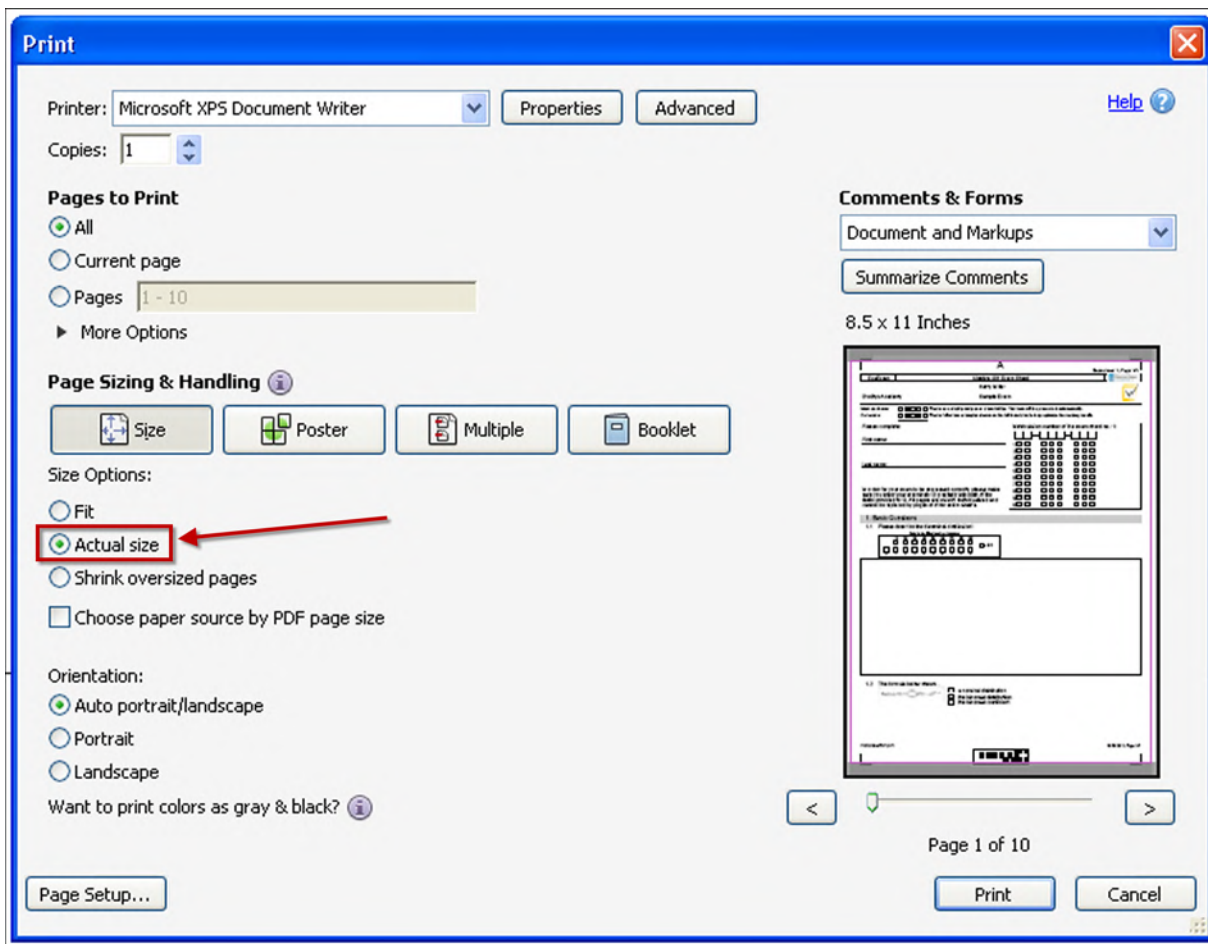
Both the barcode at the bottom and the string on the bottom left of the page contain the exam sheet number on every page:



**Figure 119: The Page Link at the Bottom of the Page**

### Note:

The exam must be printed with a zoom factor of 100%. Therefore, be sure that in the Acrobat Reader's print dialog, the option "Page Size" is set to "Actual size" in the "Page handling" panel.



**Figure 120: Printer Dialogue – Page Sizing is set to "Actual size"**

If you can see a zoom factor in this preview it must be 100%. Differing, and in particular smaller zoom factors, can result in the exam papers no longer being able to be processed.

If, when creating the exam sheets you decided on the procedure with a separate answer sheet, the PDF file contains an answer sheet for all participants, which is also complete with a barcode and serial number.



Exam sheet: 21, Page: 1/1

evaexam
evasys

Sample Academy
Noah Peterson

Demo Subunit
Cityknowledge of Hamburg

Mark as shown: ☒ ☐ ☐ ☐ Please use a ball-point pen or a thin felt tip. This form will be processed automatically.

Correction: ☐ ☐ ☒ ☐ Please follow the examples shown on the left hand side to help optimize the reading results.

Please complete:

First name: \_\_\_\_\_

Last name: \_\_\_\_\_

In order for your exam to be processed correctly please make sure you enter your examinee-ID precisely into both of the fields provided for it. All pages are entirely individualized and cannot be replaced by pages of other exam sheets.

Examinee ID of the exam sheet no.: 21:

□□ - □□□ - □□□

1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Hamburg**

	a	b	c	d	e	f		a	b	c	d	e	f
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				5.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2	<input type="checkbox"/>	<input type="checkbox"/>					5.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		5.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		5.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								

Figure 121: Answer Sheet

The corresponding questionnaire must be retrieved separately from the exam details . To do this, click on the name of the exam in the exam list. Then, in the section "Actions", select the option "Show Exam Sheet".

Exams in Folder "Exams 2022"													
Type	Name	Details	Status	Template	Created	Processed	Sheets	# Forms	Original Scans	Report	Export	Actions	Request
	Sample exam		In progress	SampleEx02	20.05.2022	--	24	0					0

Create new exam

Figure 122: Exam List

Exam Details	
Exam	Sample exam
Folder	Exams 2022
Type	Paper based (Hard Copy)
Participants	Entry of student ID by participants
Exam sheet	SampleEx02
Grading Scale	no scale assigned
Status	In progress
Exam Created on	20.05.2022 at 10:24:24

Actions	
Create additional individualized exam sheets:	0
<b>Request</b>	
Administrate participants	
<b>Show Exam Sheet</b>	
Activates the display of exams in the LMS via LTI®	
Finish Data Collection, Close Exam	
Grading Scale:	no scale assigned <b>OK</b>
Change grading scale for the exam	
Rename Exam	
Move Exam	

**Figure 123: Open Exam Sheet**

Now the exam sheets can be printed in the required quantity for the participants. If desired, of course a questionnaire designed outside of evaexam can be used. However, it is absolutely necessary that the order of questions and answer options are identical to those on the answer sheet.

## Hint:

Please remember to always print some exam sheets in reserve and take them in the exam. You can then make it available in case the sheet of a participant should no longer be usable or more participants appear as expected.



### 5.9.2. Type of Participant Capturing: Participant Import)

After confirming the exam summary by clicking [Apply], you are taken directly to the participant administration of your exam.

Administrate participants

Participants of: Shakespeare 101 2022

ID	First Name	Last name	Email	Address	Title	Custom 1	Custom 2	Custom 3	Edit	Delete
----	------------	-----------	-------	---------	-------	----------	----------	----------	------	--------

**Add** **Delete all**

**CSV import of participant data**

Import the participant data  **Browse...** **Import**

**Back**

**Figure 124: Participant Administration**

Here you can store the data of your exam participants. Two options are available to you. You can

- manually add participants.
- upload participant data via a CSV import.

#### Manual Addition of Participant Data

To manually add the data of your participants, click on the green button [Add] in the participant administration. The following window opens:

Search for participants

Before the participant data can be specified,  
the ID must be entered and checked.

ID  **Search**

Details of the participants

Exam **Shakespeare 101 2022**

ID

**Figure 125: Entering the Participant Data**

To add a new participant, first enter the ID of the participant in the area “Search for participants”. Then click on [Search]. Evaexam will then check whether a participant with this ID already exists in the system. Should this be the case, a data comparison





takes place and the existing profile data such as first name, last name etc. are automatically adopted.

If no participant with this ID exists, you can now enter the profile data manually.

As well as the personal data of the exam participant, you can also add custom information in three custom fields, such as degree program, type of certificate or status of the exam. You can later filter according to these criteria in the CSV raw data. An entry in these fields can also be used to restrict the calculation of the average results to a certain participation group (e.g. first participation) when using an automatic adjustment clause. See also chapter 10.4.3. "Adapt Grading Scale (Automatic Adjustment Clause)". Click [Save] at the bottom to add the exam participant. He will now be included in the participant list.

### Administrate participants

Participants of: Shakespeare 101 2022

ID	First Name	Last name	Email	Address	Title	Custom 1	Custom 2	Custom 3	Edit	Delete
123456	Mike	Miller	mm@sample.com			first participation				
221133	Betty	Bowman	bb@sample.com			second try				

Add
Delete all

**Figure 126: List of Exam Participants**

In the case of an erroneous entry you can change the participant data with the pencil icon in the "Edit" column later, or delete it with the X icon in the column "Delete".

### CSV Import of Participant Data

To import the data of your exam participants, it must be available as a CSV file. The CSV file must adhere to a specific structure. The separator can either be a semicolon or the character defined by the administrator in the configuration under "Settings/ evaexam Settings/ Data Import and Export/ Separators CSV import and export".

The following data structure is specified for the import of participant data:

	ID	Email	Last Name	Title 1	First Name	Title 2	Address	Custom 1	Custom 2	Custom 3
Participant 1	12345678	miller@example.com	Miller		Mike	Mr.				
Participant 2	23456789	brown@example.com	Brown	Dr.	Christopher	Mr.				
Participant 3	34567890	white@example.com	White		Sarah	Mrs.				

**Table 1: Data Structure for the CSV Import of Exam Participants**

The text file should appear as follows:

```
12345678,miller@example.com,Miller,,Mike,Mr.,,,
23456789,brown@example.com,Brown,Dr.,Christopher,Mr.,,,
34567890,white@example.com,White,,Sarah,Mrs.,,,
```

To upload the participant data via CSV import, click on [Browse] in the area “CSV Import of participant data”. Select the desired file and then click on [Import].

The screenshot shows a web interface titled "Administrate participants". Below the title, it says "Participants of: Shakespeare 101 2022". There is a table with columns: ID, First Name, Last name, Email, Address, Title, Custom 1, Custom 2, Custom 3, Edit, and Delete. Below the table are two buttons: "Add" (green) and "Delete all" (red). Below these buttons is a section titled "CSV import of participant data" which is highlighted with a red box. This section contains the text "Import the participant data", a text input field with "No file selected.", a "Browse..." button, and an "Import" button. At the bottom of the interface is a "Back" button.

**Figure 127: Import of Exam Participants**

After the import the participant data is displayed in the participant list. Should later changes need to be made to the datasets, this can be done via the pencil icon in the “Edit” column or deleted with the “X” in the “Delete” column.

ID	First Name	Last name	Email	Address	Title	Custom 1	Custom 2	Custom 3	Edit	Delete
717866	Bill	Hellman	b.hellman@example.com			Bachelor				
280579	Kerstin	Kruger	k.krueger@example.com		Ph.D.	Master				
010203	John	Johnson	br@evasys.de			first participation				
112233	Mike	Miller	mm@evasys.de			second try				
473557	Carlos	Hernandez	c.hernandez@example.com			Master				

Add
Delete all

**Figure 128: Overview of the Imported Participants**

### Hint:

You should always import some additional participants in case you need one or more additional sheets during the exam. This could be the case if, for example, the exam sheet of a participant can no longer be processed because of multiple corrections or if more participants than expected want to take the exam.

To import further participants, use a fictitious examinee-ID and set the participant name to "Substitute Sheet" or something like this. Please ensure that the participant using this substitute sheet notes his/her name and examinee-ID on the sheet so you can later on assign it to the participant.

### Note:

In evaexam, the participant ID is a unique identifier. If a CSV file is subsequently imported again, there is a risk that existing participant data will be updated.

If exams with imported participant data already exist in the system, please compare the existing participant data with the data to be imported very carefully and check them for correctness. If you import new participant data for existing exam participant IDs, they will be automatically overwritten.

The import of participant data follows the principle: For each participant ID there can only be one participant record in the database.

## Requesting the Exam Sheets

Once all participants for the exam have been imported or manually added, click on the button [Back]. You will now reach the overview of the exams in your exam folder.

	Shakespeare 101 2022		In progress		EngTest	20.05.2022	--		2		0				
--	-------------------------	--	----------------	--	---------	------------	----	--	---	--	---	--	--	--	--

**Figure 129: Requesting the Exam Sheet**

Click on the questionnaire icon of the desired exam in the column "Request". A PDF file opens containing a personalized questionnaire for each of your exam participants.

First name: Amy		Examinee number of the exam sheet no.: 1:																							
		<table border="1"> <tr> <td>1</td><td>2</td><td colspan="2">-</td><td>3</td><td>1</td><td>0</td><td colspan="2">-</td><td>0</td><td>2</td><td>0</td> </tr> </table>												1	2	-		3	1	0	-		0	2	0
1	2	-		3	1	0	-		0	2	0														
		1	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
		2	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>													
		3	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
		4	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
		5	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
		6	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
		7	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
		8	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
		9	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
		0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>													
Last name: Hardy																									

Figure 130: Participant Data in the Questionnaire Header

If you have deactivated the ID area when creating the exam sheet it will not be displayed on the PDF form. Instead, the additional placeholders you have added to the form header will be substituted with the participant information.

evaexam		Exam sheet: 1, Page: 1/2	
Noah Peterson		evasys	
Cityknowledge of Hamburg			
Exam sheet for Axel Miller			

Figure 131: Header with participant information

**Hint:**

For online exams, it is possible to add placeholders not only in the questionnaire header. Just add the desired placeholder (as capital letters in square brackets) in any text inside the questionnaire. This will not work for paper-based exams due technical reasons.

## 5.10. Creating Additional Exam Papers

If "Completion by participant" was chosen as the type of participant capturing, additional examples of current exams can be requested at any time in the exam overview in the column "Request". This process creates unique correspondingly numbered exam papers. The exam papers that have already been produced are hereby accounted for in the numbering.

Type	Name	Details	Status	Template	Created	Processed	Sheets	# Forms	Scans	Report	Export	Actions	Request
	Sample exam		In progress	SampleEx02	20.05.2022	--	24	0					<input type="text" value="0"/>

Figure 132: Create Additional Individualized Exam Sheets - Completion by Participant

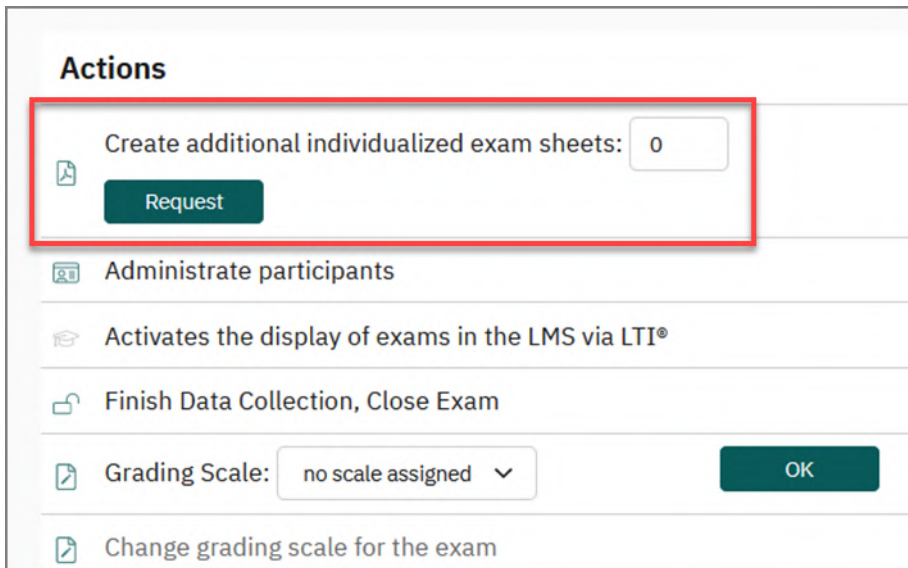
If “Pre-filled (participant import)” was chosen as the type of participant capturing, additional exams can be requested at any time by importing additional participants. Additional participants can be imported by clicking on the index card symbol.

Afterwards the personalized exams can be opened in the column “Request” (for further information see chapter 5.9.2. “Type of Participant Capturing: Participant Import”).



**Figure 133: Create Additional Individualized Exam Sheets - Pre-Filled (Participant Import)**

Alternatively, additional sets of sheets can be retrieved in the details of an exam. To do this, click on the name of the exam in order to reach the details. In the “Action” section, enter the required number of sheets in the field “Create additional individualized exam sheets” and click on [Request].



**Figure 134: Create Additional Exam Sheets in the Exam Details**

## 5.11. Important Information about Paper Processing

For printing, filling and evaluating the exam sheets there are a few important rules to note.

Please read this information carefully and completely before conducting an exam.

The compliance with these rules ensures the smooth automatic processing of the forms.

- [Notes on Printing the Exam](#)
- [Notes on Completing the Exam](#)
- [Notes on Scanning the Exam Sheets](#)
- [Evaluation of Open Questions](#)

### 5.11.1. Notes on Printing the Exam

- You must at any rate print the individualized exam sheets. Because of the page numbering you may not copy them.
- The print image should be clear and rich in contrast, without distortions.
- Use white paper, as white paper offers the highest contrast and thereby ensures the best reading results. In some cases it can be useful to print single page on colored paper, e.g. each first page of an exam sheet so that sets of exam sheets can be easily separated. If you do so, please test the reading results by doing a test scan. Do only use light colored paper in pastel tones.
- If possible, do not staple the exam sheets, because stapling can damage the corner stones. You should better use paper clips as these can be removed without any problems before scanning the forms, or use colored separator sheets. If, however, you have to staple your sheets, cut off the corner so that the corner stone is removed completely. Please note that you need at least three corner stones to process the exam. Avoid to print your exam sheets in a reduced size, please print in original size. At any rate, do a test scan and check the reading results.

### 5.11.2. Notes on Completing the Exam

- Crosses in boxes  
Crosses can only be recognized when they are inside a box. Crosses which only just touch the box, or hardly make any mark within the box, cannot be counted.
- Use of blue or black ball-point pen, or thin felt pens  
Different types of scanner mask different colors. Therefore the papers may only be filled out with a blue or black ball-point pen, or a thin black felt pen. Too thick a pen leads to a high degree of blackness, which will be recognized as a correction.



- Neatly cross the examinee-ID (applies only to “Completion by Participant” type of participant capturing).

Every digit in the examinee-ID must be crossed correctly in the matrix. The automatic reading of the examinee-ID is subsequently carried out using the check-box position.

So that verification can be performed, the exam candidate has to also put his/her numerical examinee-ID and name in the designated fields.

- Do not write over the corner markings or the barcode

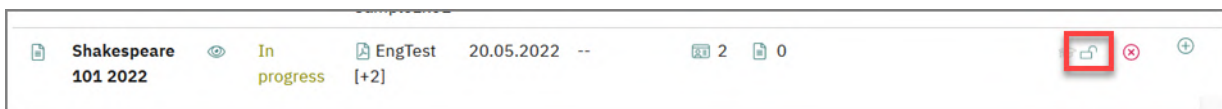
Under no circumstances should the exam candidate write in the barcode (center bottom), or over the four corner markings.

Writing or other dark marks (spots of coffee etc.) on these central scanning elements can lead to the paper becoming unreadable.

### 5.11.3. Notes on Scanning the Exam Sheets

Before scanning in the stacks of individualized and filled exam sheets check them for some details:

- Put exam sheets of one exam in one stack only. In the following the individualized exam sheets of one exam are called “stack”.
- Log in as the active user and check if the exam is still open (open lock, see figure below). Evaexam cannot transfer data to an exam if it is closed, even if the verifier confirms the stack. But in this case you will get a warning message.



**Figure 135: An Open Exam**

- Remove all pieces of scrap paper from the stacks.
- If the option is available with your scanner activate the automatic removal of empty pages in the scanner driver.
- We recommend not to scan very big stacks and to divide big stacks into smaller ones (up to 100 pages). By this the verification process stays easily manageable and you can edit the different stacks by different verifiers. Furthermore, if the batches have the same size it will be easier to check if all sheets have been scanned completely.
- The individualized exam sheets should not be divided, i.e. you may divide the stacks, but one exam of one person should stay together in one stack.



- Please observe, in exams with a separate answer sheet, only the answer sheets need be scanned in. Separate these from the exam sheet, if this has not already been done.

**Note:**

We recommend to visually check the examinee ID's before scanning. It might be very difficult to find and fix erroneously filled sheets afterwards.

#### 5.11.4. Evaluation of Open Questions

When creating the exam sheet you can decide, how to evaluate open questions.

If you have decided to evaluate open questions online, please refer to chapter 9. "Score Open Questions Online".

If you have decided to evaluate open questions on the exam sheet, the open questions have to be corrected and scored on the paper form before scanning the sheets.

The examiner enters the point score for each question into the matrix field, which is printed after the question text. A total of up to 99.5 points can be awarded for an open question.

The digit entered in the upper line of the matrix corresponds to the ten's place of the point score. In the lower line the value in units should be entered. The additional left-hand box allows the entry of a half value.

When it is only necessary to give a single digit point score, a cross need only be entered in the lower line.

**Figure 136: Point Allocation in Open Questions**

Since these crosses will be read automatically, it is necessary to cross the boxes as neatly as possible.

## 5.12. Selection of Scan Methods

When the exam sheets are printed and filled-out, the next step is to scan them using a document scanner or a suitable multi-functional device. The scanner that is used has to be able to create files in TIFF format (multi-page TIFF).

There are various software options, depending on system and license, which can be used to transfer the filled-out exam sheets to EvaExam for processing.

- The evaexam Scanstation
- The Scan Upload
- The Scanstation light

### **Hint: Which way to choose?**

#### **Scanstation**

With the Scan Station you can remotely control your scanner if it has a so-called TWAIN interface. If the Scanstation is once configured, the scans are taken directly from the scanner with the correct settings and uploaded to your EvaExam for direct processing. The Scanstation offers extensive configuration options and an optimum error analysis. With an appropriate document scanner you achieve the best results.

#### **Scanstation light**

The Scanstation light is a simple form of the Scanstation with limited configuration options. If licensed, it can be downloaded directly from EvaExam and installed on your local computer. The scans are captured via a connected document scanner and uploaded to your EvaExam system for direct processing. The scanned batches are shown in the "Process Scans" menu in EvaExam and can be further processed there.

#### **Scan Upload**

The Scan Upload function can be selected if your scanned questionnaires are already available as files and if you do not want or cannot install additional software on your PC. Besides, you should select this method if your scanning device does not support a TWAIN interface. When using the Scan Upload you have to ensure that your scanning device is configured correctly (multipage TIFF, 200dpi, duplex, black&white).

If licensed, both Scanstation light and Scan Upload are available as transmission paths, which means both variants can be used.

The Scanstation can be operated in addition to Scanstation light and Scan Upload. However, be aware of the following: A Scanstation light and a Scanstation cannot be installed at the same time on the same client!

Regardless of the selected transfer method, the scanning device has to fulfill the requirements for paper processing in EvaExam. We recommend using scanners which have the following functions:

- ADF (Automatic Document Feeder)
- Duplex Scanning (front and back page are scanned at a time)

The scanner has to be configured in the following way:

- Paper format A4/Letter
- Black&White mode
- 200 dpi resolution
- Duplex mode

The scanner should use the compression procedure TIFF group 4 b/w resp. CCITT Fax b/w in order to work with EvaExam.

**Note:**

You should adhere to the following rules when scanning your sheets:

- Before scanning, please do a quick visual check of your paper sheets. Ensure that on all pages at least three corner stones are visible and undamaged and that the barcode is not stained, colored or damaged. If more than one corner stone is missing or if the barcode is damaged, the sheet cannot be automatically processed.
- Remove scribbling paper from the batch.
- If you have stapled your sheets, remove the staples before scanning the forms. Please cut off the corner neatly and do not remove the staples with the help of pincers, as this may lead to paper jam in the scanner due to jammed pages.
- Put the paper into the paper feeder of the scanner. Make sure that it is put straightly in the feeder.
- If you have more sheets than fit into the feeder, scan your sheets in several batches one after another.
- Clean your scanner regularly.
- Check the state of the rubber roles.

**Hint:**

Before using EvaExam the first time productive, make a test scan in order to check if your scanner is able to produce suitable TIFF files for EvaExam.

## 5.13. Scanning Forms with the Scanstation

In general, the exam sheets are scanned in a very quick and comfortable manner using the software tool “evaexam Scanstation”. The Scanstation is installed on a client PC within your organization and can be run on this PC. A document scanner is connected to this computer which allows you to scan the forms.

Additionally or as an alternative you can use the Scan Upload function directly via the EvaExam interface. This Scan Upload has to be licensed. For further information see below chapter 5.14. "Scanning Forms with the Scan Upload").

In the main window you will find the following buttons:

**Scan**

This button begins the capture process.

**Manual**

A manual with important information for capture operations is displayed.

## Settings

After entering a password you can configure the Scanstation.

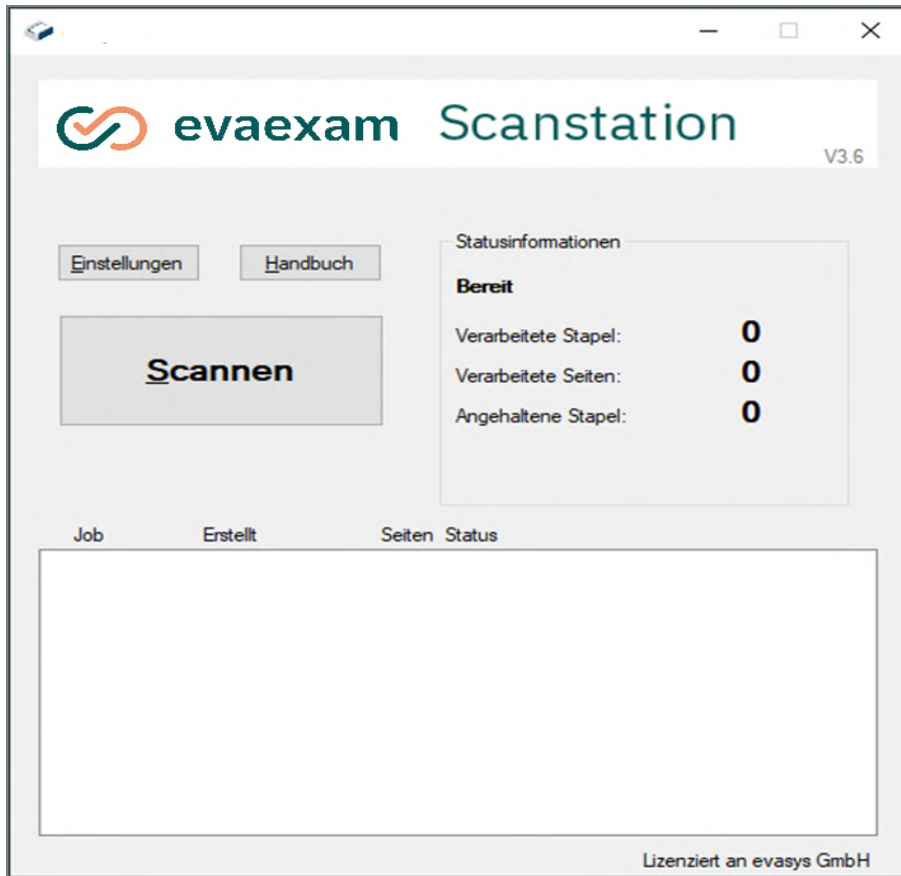


Figure 137: evaexam Scanstation

To allow for a successful processing of forms with evaexam, the scanner has to be configured in a specific way. The following standard settings apply to all models:

- Image Mode: Black and white
- Paper Size: A4 (210 x 297 mm)
- Resolution: 200 DPI
- Brightness: The threshold value should be slightly darker than average.
- Skew Correction: Deactivated
- Scan Type: Duplex (simultaneous scanning of both sides of the sheet)

Scanner configuration can differ in detail depending on the model and manufacturer. For more information, please consult the documentation supplied with your document scanner.

Please consult the “Scanstation Manual” for further information of the Scanstation and its procedure. The manual can be found in the Scanstation.

### 5.13.1. Capture Exam Sheets

The scanning process is kept as simple as possible.

Be sure that the following conditions have been fulfilled before you begin the scanning process:

A batch should contain the exam forms from only one exam. The returned papers from one exam are called batch.

If there are more forms than can fit in the feeder of the scanner then insert the next partial batch after scanning the first. Continue the scanning operation.

Insert the paper as shown in the figure below:



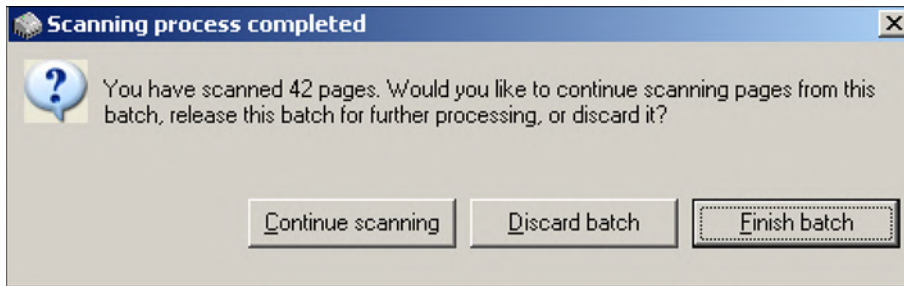
**Figure 138: Correct Insertion of Exam Sheets**

Because of the individual numbering of the exam papers, the single pages can be read in any order.

Now start the scanning process. Normally documents are scanned in duplex mode, so both sides at once, although each of these is counted as one side. Therefore if you scan 21 pieces of paper, each with printing on one side, the following dialog would show that 42 pages had been scanned when using duplex mode.

Empty pages will later be removed automatically, the processing will not be disturbed.

As soon as the pages are processed the scanstation informs you about the scanning process and asks you how to go on:



**Figure 139: The Batch Confirmation Dialogue of the Scanstation**

- Now choose [Continue Scanning], if you want to add a further batch from the same exam.
- Choose [Finish batch] if the scanning is finished. The scanned forms will be transmitted to the evaexam server, where further analysis is carried out automatically. To scan another exam, click on [Scan] in the main window again.
- If the scan was faulty, click on [Discard batch] to discard the data read in the current scan process, and to repeat the scanning as a new scan process.

**Note:**

Please ensure that the number of pages in the batch matches with the number of processed pages displayed in the Scanstation. Should there be differences (which can, for example, be caused by double-feed in the scanner), discard the batch and scan the forms again.

### **5.13.2. Rescanning sheets**

If sheets with the same page link number and the same examinee ID are scanned again, the original record will be replaced. This allows you to correct faulty exam sheets by rescanning.

## 5.14. Scanning Forms with the Scan Upload

If licensed, you can upload the exam sheets directly in the EvaExam examiner account with the help of the “Scan Upload” or the “Scanstation light”.

When you open “Actions/Process scans”, you are asked which scan function you would like to use.

The screenshot shows the EvaExam web interface. On the left, a sidebar menu lists various actions like 'Create Exam', 'List of Folders', and 'Processing'. The 'Processing' section is expanded, and 'Process scans' is highlighted with a red box. The main content area is titled 'Process scans' and asks the user to choose between 'Scan Upload' and 'Scanstation light'. Two red arrows point to the respective options. The 'Scan Upload' option includes a table of scanned documents and a description of its use case. The 'Scanstation light' option includes a screenshot of the desktop application and a description of its use case.

**Process scans**  
Please choose between Scan Upload and Scanstation light:

**Scan Upload**

With the help of the Scan Upload you can upload your previously scanned exam sheets directly via the evaexam interface. Click on the image to open the menu “Process scans”. Here you can upload and process your TIF files.

**Use Case**  
Select Scan Upload, if you are not allowed to install software on your computer, if your scanner does not support TWAIN or if your computer does not run on Windows\*. In this case, the scans must be created by your scanner in the required format (multipage TIF, 200 dpi, black&white, duplex).

**Scanstation light**

The Scanstation light is a desktop application which controls your scanning device and uploads the scanned exam sheets into the system. Click on the image to download the application. After the download, you can install the Scanstation light and connect it to your scanner. After scanning, the batches can be checked and processed in the menu “Process scans”.

**Use Case**  
Select Scanstation light, if you are allowed to install software on your computer, if your scanner supports TWAIN and if your computer runs on Windows\*. The Scanstation light has to be configured on first use. Then it will control the scanner and the data transfer process to the evaexam system. Thereby, the error rate of the scanning process is minimized.

**Figure 140: Selection of Scan Methods**

In order to upload the scanned files, open the “Process scans” menu via the left side menu, and select the Scan Upload.



Information

The batch was transmitted for processing.

**Process scans**

Scan Upload

No file selected.

Browse...

Process new batch

Refresh in 30s

Scanned Batches

Created	Source	Exam	Questionnaire	Pages	Status
20.05.2022 at 11:36:57				0	Waiting for processing

Note: The list will be automatically refreshed every 30 seconds. Please, click on "Refresh in ..." to reload the list manually.

Show hidden batches

Advanced Settings

You are currently using the Scan Upload. If you want to use the Scanstation light instead, please click [here](#).

**Figure 141: Scan Upload**

The exam sheets have to be scanned with a document scanner or multifunctional device beforehand. The scanner must be able to produce files in TIFF format (multi-page tiff files).

The same scanning settings as described above for the Scanstation are obligatory:

- Image Mode: Black and white
- Paper Size: A4 / Letter / Legal
- Resolution: 200 DPI
- Brightness: The threshold value should be slightly darker than average.
- Skew Correction: Deactivated
- Scan Type: Duplex (simultaneous scanning of both sides of the sheet)

Save the TIFF files to your client PC. Open the TIFF file and check the quality of the scan. If at first sight the scan looks very light-colored or distorted, check the scanner settings and scan the forms once again.

**Note:**

Before you print a high number of sheets and distribute them, do a test scan to check if your scanner and scanning settings are correctly configured.

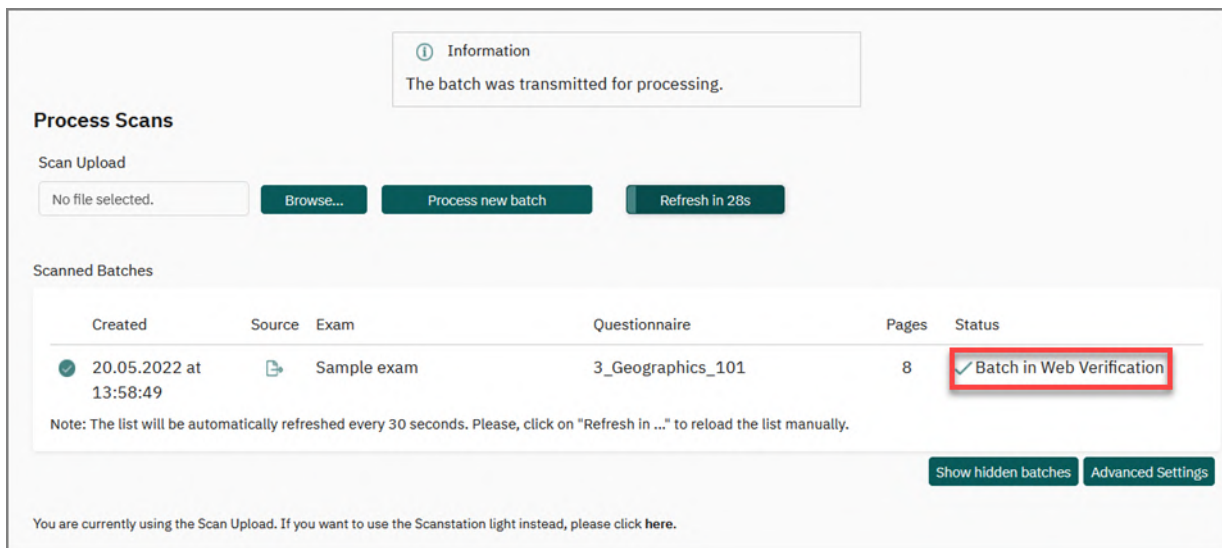
Click the button [Browse] and select the file you want to upload to the system. Then click [Process new batch] in order to upload the file and start processing the forms.





**Figure 142: Upload scanned forms**

The file is uploaded now. The Scan Upload first shows the status “VividForms Reader is working”. When the forms have been recognized, the status changes into “Batch in Web Verification”.



**Figure 143: Status “Batch in Web Verification”**

When clicking on the status you are directed straight to the verifier and can do the verification.

## Advanced Settings

If your scanner cannot be optimally configured you can adapt the settings for processing forms in the “Advanced Settings” of the Scan Upload.

**Figure 144: Open Advanced Settings**

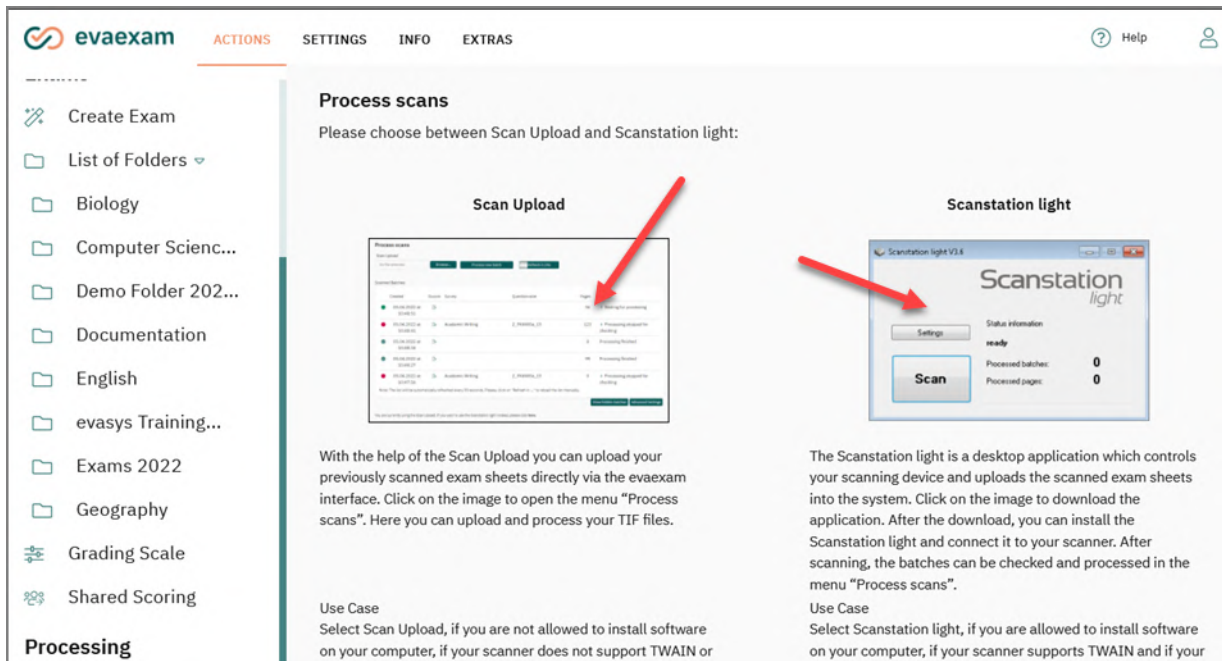
You can optimize the processing of very dark or lights scans by adapting the OMR threshold. Select the correspondent option from the drop-down list.

If your scanner is not be capable of producing black & white images, you can use gray scale processing. In this case activate the corresponding option and set the brightness manually. Check the results by doing a test scan.

**Figure 145: Advanced Settings in the Scan Upload**

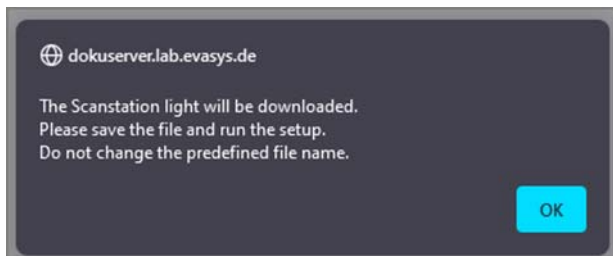
## 5.15. Scanstation light

Open the menu “Process scans” in the “Actions” menu and click on the image labeled “Scanstation light”. Now the setup file for the scanstation software will be downloaded.



**Figure 146: Selection of scan methods**

A download message is shown. Please start the download by clicking [OK].



**Figure 147: Download Message**

**Note:**

Do not change the file name of the downloaded setup file, as your configuration settings are encoded in the file name. If you change the file name, the scanstation will not be operable.

Run the setup. After the installation, the Scanstation light can be started.

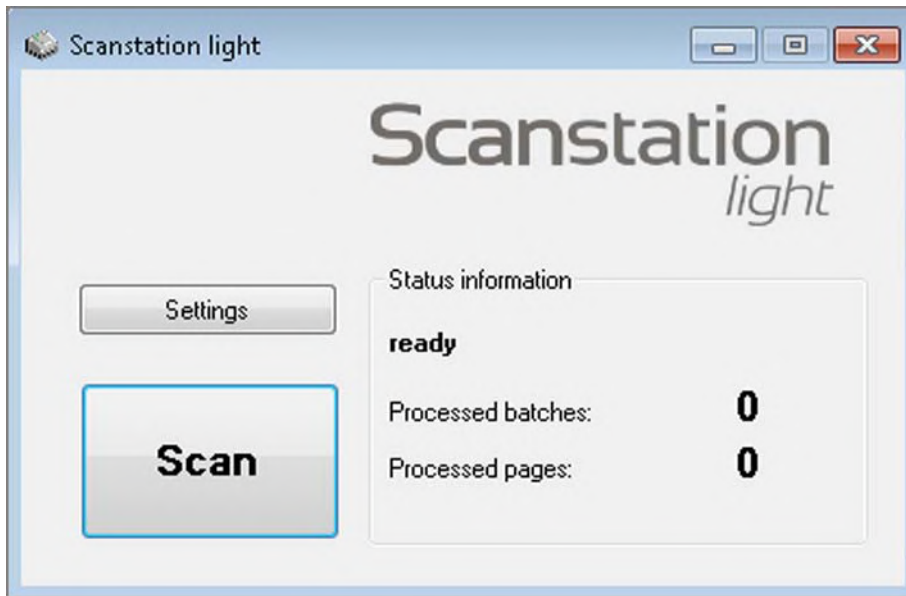


Figure 148: Scanstation light

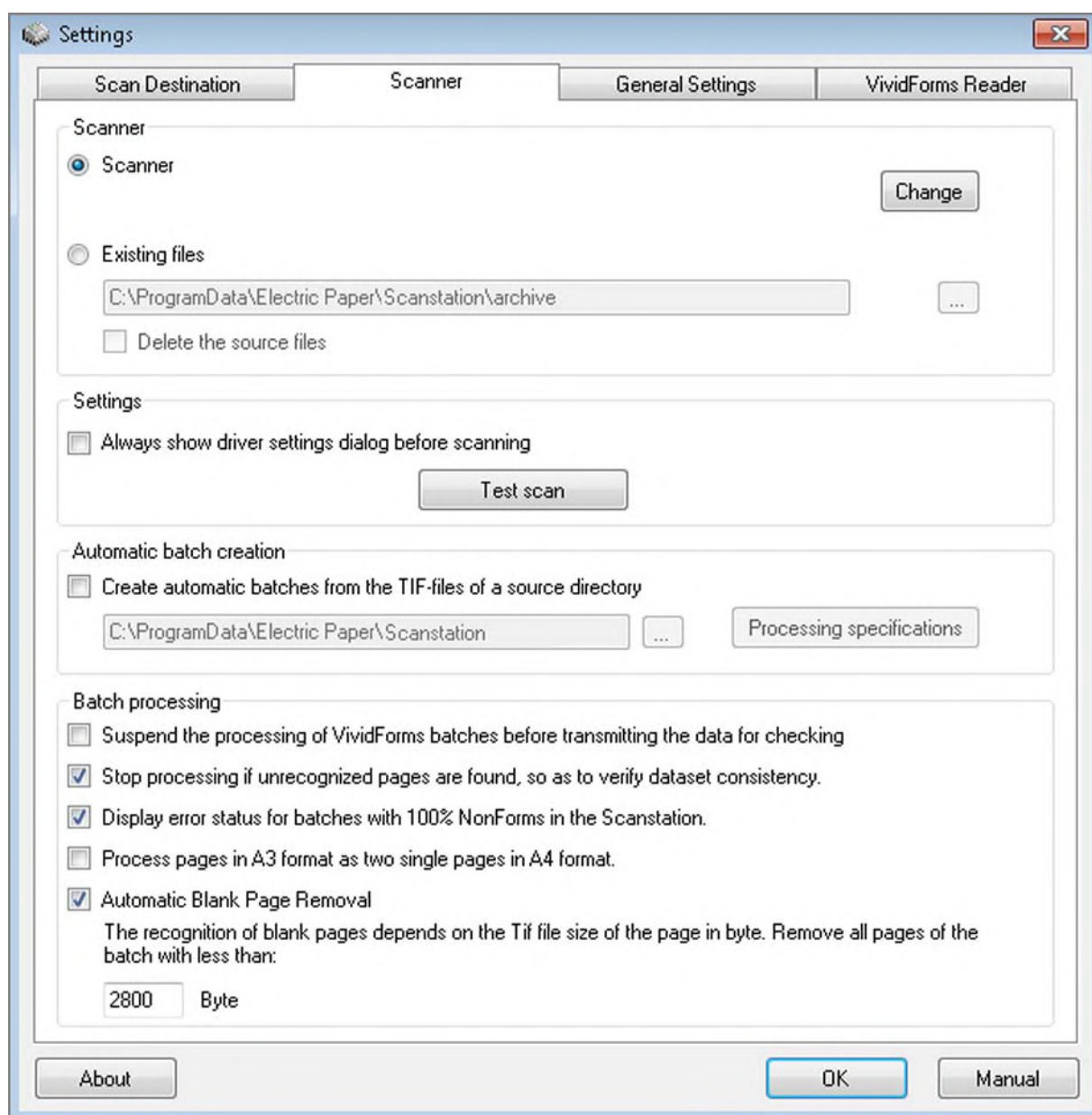
### Settings in the Scanstation light

Click the [Settings] button to open the settings menu for the Scanstation light.

The settings menu has two tabs: Scanner and General Settings.

### Scanner Tab

In the Scanner tab you can configure the scanning device. Besides, you can activate automatic archiving of the scanned batches in a local directory.



**Figure 149: Scanner Tab**

The document scanner should be installed before you start the Scanstation light. Via the button [Change] you can select the scanner.

**Note:**

The scanner must have a TWAIN interface. It must be able to produce group 4 compressed multipage TIFF files, 200dpi, black&white mode, and duplex scan should be available. Most of the document scanners will be able to produce such files.

After you have selected the scanner, you can configure it via the button [Test scan].

The settings dialog looks a bit different depending on the scanning device. If in doubt, consult the scanner documentation.

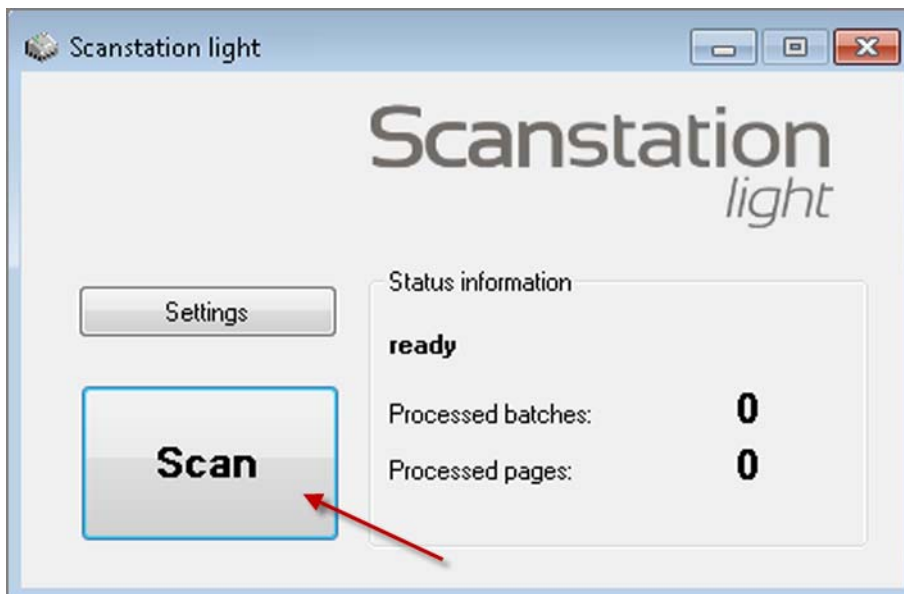
The following settings are important:

- Color: Black&White (b/w)
- Resolution: 200dpi
- Page size: DIN A4
- Duplex
- Lightness slightly darker than the medium value

Further scanning options such as automatic page scaling etc. should be deactivated.

**Scanning with the Scanstation light**

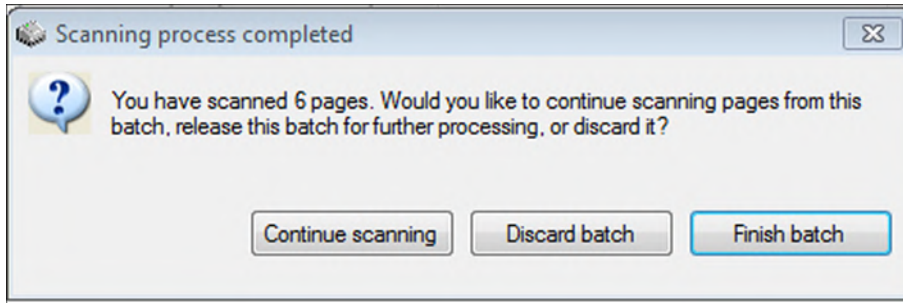
Put the questionnaires into the feeder of your scanner. Then start the scanning process by clicking the button [Scan] in the Scanstation interface.



**Figure 150: Start Scanning Procedure**

After the scans of a batch have been scanned you are asked if you wish to scan more questionnaires (if, for example, not all pages fit into the feeder), if you wish to delete the batch (if, for example, there was a double feed or paper jam), or if you wish to release the batch (if everything went fine).

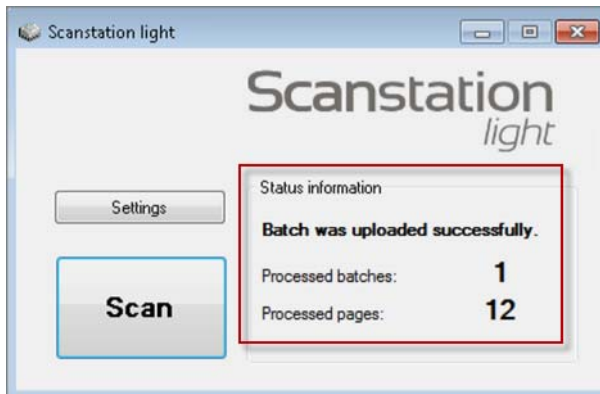




**Figure 151: Complete Scanning Procedure**

Do not scan too many pages within a batch. We recommend not to scan more than 200 pages within a batch.

If the batch has been successfully uploaded, this will be shown in the status information. The systems indicates how many batches and pages have been processed. Blank pages are removed automatically.



**Figure 152: Batch successfully scanned**

## 5.16. Trouble Shooting for Paper Processing

If you have followed all required guide lines to print, fill in and scan forms, you should be able to process your forms without any problems. If one or more of these guide-lines have not been followed, a warning message when scanning your forms with the Scanstation or uploading them via the Scan Upload may occur and there could be problems processing your forms. In the Scanstation interface, warning messages are displayed in the status box. In the "Scan Upload" the messages are shown in the column "Status".

There may be processing problems when

- the system cannot find at least three corner stones
- the forms have not been printed in the correct paper format or have been printed in a scaled way
- the scanner is not configured correctly
- the bar code has been destroyed.

By clicking on the status message you can open further information on the kind of problem.

In the following, the most important warnings and error messages with information on causes and measurements are listed.

### **Duplicate serial number**

The batch contains exam sheets with the same serial number.

- Possible reason:
  - Exam sheets have been copied or scanned twice
- Further procedure:
  - Check the batch on exam sheets with duplicate serial numbers
  - If existent, discard the batch, transfer the data of the duplicate sheet to an empty sheet and scan all the sheets again
  - Attention: If you proceed and process the duplicate forms, the data of the forms already captured will be overruled by the data of the sheets with the same serial number!

### **OMR threshold exceeded**

When analyzing the forms the VividForms Reader cannot find single checkboxes on the sheets.

- Possible Reasons:
  - Poor printing: Some checkboxes have not been clearly printed or have not been printed at all because the toner is low or the printer is soiled
  - Poor scanning: Parts of the pages could not be scanned correctly because the scan is soiled
  - Wrong printing or scanning settings: The print/scan is much too light or distorted
  - Use of correction fluid: Single checkboxes have been covered with correction fluid
  - Covering of single checkboxes: The batch contains a page with a sticky note covering some checkboxes
- Further procedure:
  - Check the scans: Are the checkboxes clearly visible in the TIFF files? If not: Clean the scanner, check the scanner settings and scan the forms again
  - Correction fluid: Batch processing can be continued if no boxes with checkmarks are affected.
  - Covering of checkboxes: Remove sticky notes; if checkboxes with checkmarks were covered, scan the forms again; otherwise batch processing can be continued

### **Error during image processing**

There may be several reasons why the forms cannot be processed.



- Possible reasons:
  - There is not enough volume available to process the batch
  - The sheets have been scanned using gray scale or color mode
  - The system does not know the exam ID as, for example, the original exam has been deleted
  - The system does not know the exam sheet ID as, for example, the exam sheet has been deleted
- Further procedure
  - In case of too little volume you first have to purchase further volume in order to continue batch processing
  - In case of color or gray scale scanning you have to scan the forms again in black & white mode. If this is not possible, switch the system to gray scale processing in the advanced settings of the Scan Upload
  - In all other cases it is not possible to process the forms.

### **Only Scanstation: Data set consistency check**

The batch contains pages which cannot be recognized as exam sheets.

- Possible reasons:
  - Scratch paper in the batch
  - Barcode or corner stones manipulated or missing
- Further procedure
  - Check data set consistency
  - In case of scratch paper: Select the option “No VividForms form” and continue batch processing
  - In case of barcode manipulation: Enter the barcode text manually or with the help of the drop-down lists; continue batch processing
  - In case of cornerstones missing: Discard batch, do not continue batch processing, as these forms cannot be processed; search the batch for affected sheets and ensure that at least three corner stones are visible (that, for example, nor corners are folded over); scan the batch again straight and carefully
  - For further information please refer to the Scanstation manual. It can be opened directly in the Scanstation interface.

### **Only Scanstation: Incomplete Exam Sheets**

The Scanstation has noticed that one or more exam sheets miss single pages.

- Possible reasons:
  - The scanner has caused double-feed.
  - The scanner does not scan in duplex mode though the exam sheets are printed duplex.
  - In the paper batch single pages of exam sheets are missing.

- Further procedure:
  - Click on the status “Incomplete Exam Sheets” in the Scanstation status window. In the information you can see, which exam sheets are affected.
  - Check the paper batch to see if it contains the missing pages.
  - If yes: Discard the batch in the Scanstation. Check the scanning settings and scan the sheets again. Make sure that no double-feed takes place. If necessary, maintain the scanner and clean or renew the rubber roles.
  - If no: Discard the batch in the Scanstation. Add the missing pages and scan the batch again.

For further information please refer to the Scanstation manual. It can be opened directly in the Scanstation interface.

## 5.17. Verification

After scanning the forms, crosses recognized as uncertain must be manually checked. You can see this when the status “Verification” is shown in the exam overview:



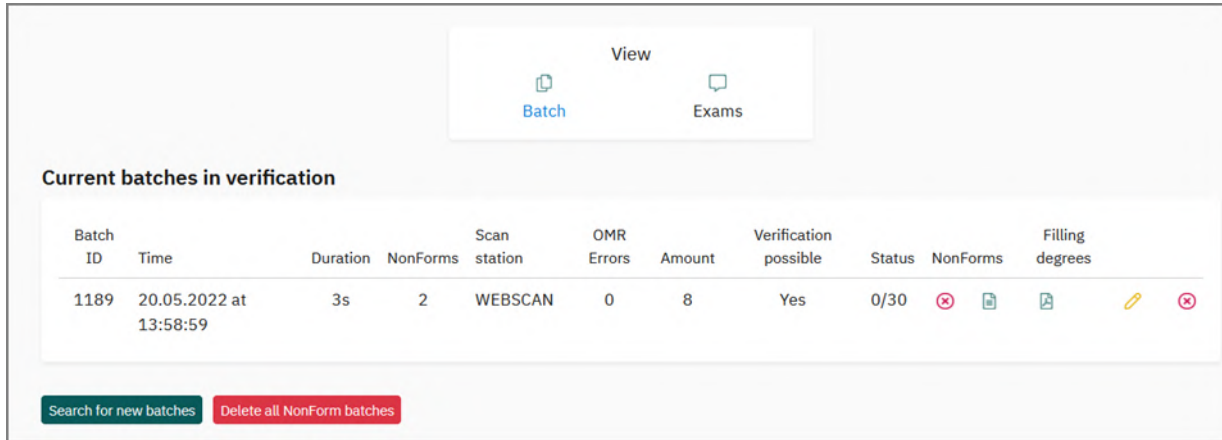
**Figure 153: “Verification” Status**

To carry out the verification, click on the status message or select the option “Verification” in the left-hand menu.

Alternatively, the evaexam administrator can create a specific user account with “Verifier” as the user type. This user can also undertake the verification. All the exams which are still to be verified are now displayed in the table view of the verification mask.

### 5.17.1. Batch View

Very large exams should always be verified in the batch view. The scanned batches are listed individually in the table.



The screenshot shows a web interface for batch verification. At the top, there are two buttons: 'Batch' (highlighted in blue) and 'Exams'. Below this is a section titled 'Current batches in verification' containing a table. The table has columns for Batch ID, Time, Duration, NonForms, Scan station, OMR Errors, Amount, Verification possible, Status, NonForms (with a delete icon), Filling degrees (with a display icon), and Filling degrees (with an export icon). A single row is visible for Batch ID 1189, scanned on 20.05.2022 at 13:58:59, with a duration of 3s, 2 NonForms, and 0 OMR Errors. At the bottom of the interface, there are two buttons: 'Search for new batches' and 'Delete all NonForm batches'.

Batch ID	Time	Duration	NonForms	Scan station	OMR Errors	Amount	Verification possible	Status	NonForms	Filling degrees
1189	20.05.2022 at 13:58:59	3s	2	WEBSCAN	0	8	Yes	0/30		

Figure 154: Batch view

The table is made up of the following columns:

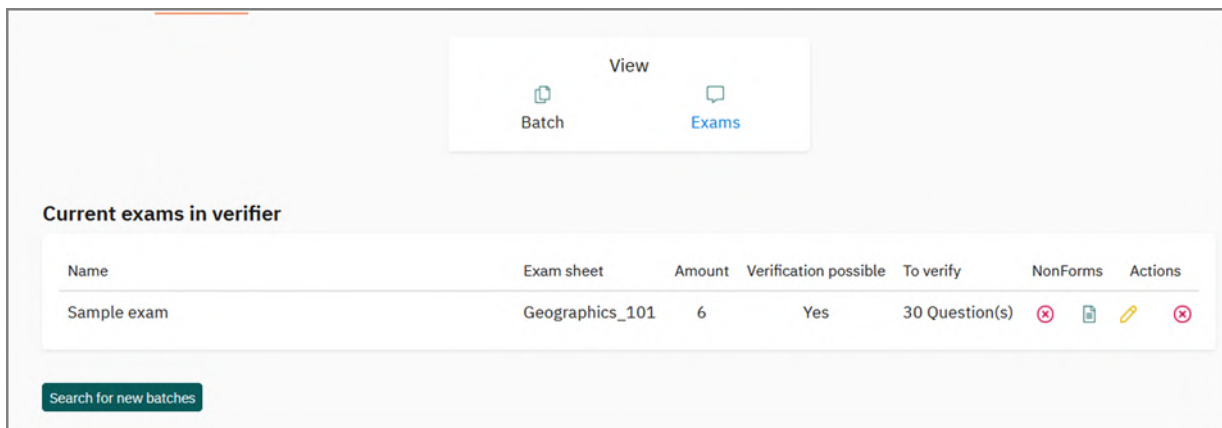
- **Batch ID** - Serial number of the batch
- **Time** - Scan time of the batch
- **Duration** - Processing time of the VividForms Reader in seconds
- **NonForms** - Number of unidentified pages in a batch
- **Scanstation** - Name of the scanstation
- **OMR errors** - Number of checkboxes not found
- **Sheets** - Number of all pages
- **In progress** - Shows whether other users are already processing the batch
- **Status** - Corrections already processed/Total corrections
- **NonForms**
  - Delete all NonForms
  - Display NonForms
- **Filling Degrees**
  - Display filling degrees in original PDF
  - Export filling degrees as CSV file
- **Verification**
  - Process batch
  - Verify automatically
  - Delete batch

### 5.17.2. Exam view

In this view you can see all the current user's exams which are awaiting verification.

The table consists of the following columns:

- **Exams** – name of the exam
- **Form** – abbreviated name of the exam paper template
- **Sheets** – number of recognized exam papers
- **In progress** – shows whether other users are already doing the exam
- **To verify** – number of exams to be corrected
- **NonForms**
  - Delete NonForms (i.e. delete the scanned pages that could not be recognized by the VividForms Reader)
  - Show NonForms
- **Verification**
  - Verify batch (i.e. edit exam)
  - Verify automatically
  - Delete batch (i.e. delete all scanned pages of the exam)



**Figure 155: Exam View**

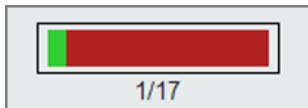
Before you delete the NonForms you should look at them to be sure that no scanned exam sheets are affected. After checking the NonForms you should delete them.

### 5.17.3. Verification

When you click on the “Verify” symbol in one of the views, you will reach the verification view.

In the verification view you will always see a question which needs to be verified. You can work comfortably through the exam questions from all exam papers one after the other, until the verification has finished for all questions and pages in the exam.

The current processing status will be shown in a bar on the top right of the screen:



**Figure 156: Processing Status**

The green area symbolizes the questions that have already been corrected, and the red area shows those that still need correcting. The number of corrected/still to be corrected questions is also shown.

The status messages from the VividForms Reader are shown on the left hand side of the bar.

The most frequent warning messages are:

- Filling degree of check box is marginal (The degree of filling between the minimum and maximum thresholds or above the threshold for “correction”.)
- Question has more valid answers than permitted. (Two or more checkmarks detected for one question)
- Check box is signed as crossed out (checkmarks were crossed out)
- The question was not answered (The question was not answered)

The following figure shows a multiple choice question in the verification.

**Reason for Display in Verification:**

⚠ Filling degree of checkbox is marginal. 3/30

**Selection of the participant (Scanned Question)**

1.5 Which statement is correct?

- ☒ You can assign a course to a substitute
- ☒ You can assign a survey to a substitute
- ☒ You can change an instructors subunit

1.6 Which import tvoes are available in EvaSvs?

**Recognized Mark / Revision**

**Multiple Choice**

Which statement is correct?

- ☒ You can assign a course to a substitute
- ☒ You can assign a survey to a substitute
- ☒ You can change an instructors subunit

☒ Answer valid

☐ Answer invalid

Cancel
Save and Exit
Exam Sheet
Back
Next

**Figure 157: Multiple Choice Question in the Verification**

You can see the following elements in the window:

- **Header area:** The header area informs you about the kind of error (left hand side) and the fields still to be verified (right hand side).
- **Original image excerpt:** You can see the actual checkmarks of the examinee in this view. A click on the image excerpt will open a separate window showing the image in its original size.
- **Recognized Mark / Revision:** This view informs you about of the decision of the VividForms Reader and allows you to change the checked checkboxes.

In the figure above you can see a multiple choice question where the filling degree of checkbox is marginal and another is above cancellation level. The VividForms Reader recognizes this and suggests a solution. You can accept this or correct this decision (or mark the checkbox “invalid” on the right hand side). Your decisions have the highest priority here, i.e. you can correct all the decisions of the VividForms Reader.

With a click on the [Next] button at the bottom of the view, you move forward to the next question.

Next to the [Next] button there are several buttons, which each trigger an action:

[Exam Sheet] – displays the exam paper in a new window. The checkboxes in question are marked by a red circle. This view can be helpful for seeing the overall context.

Exam sheet: 3, Page: 1/2

EvaExam	City Knowledge	Electric Paper
Sample Academy	Noah Peterson	<input checked="" type="checkbox"/>
Demo Subunit	Hamburg	

Mark as shown: ☐ ☒ ☐ ☐ Please use a ball-point pen or a thin felt tip. This form will be processed automatically.

Correction: ☐ ☒ ☐ ☐ Please follow the examples shown on the left hand side to help optimize the reading results.

Please complete:

First name: Betty

Last name: Meier

Examinee ID of the exam sheet no.: 3:

1	2	3	4	5	7
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In order for your exam to be processed correctly please make sure you enter your examinee-ID precisely into both of the fields provided for it. All pages are entirely individualized and cannot be replaced by pages of other exam sheets.

### 1. Hamburg

1.1 How many people live in the city of Hamburg?

☐ 70.000  
☐ 700.000  
☒ 1.700.000

1.2 Hamburg is a Hanseatic city.

☒ True  
☐ False

1.3 Which of the following persons are honorary citizens of the city of Hamburg?

☒ Uwe Seeler  
☐ Günther Jauch  
☒ Helmut Schmidt  
☒ Siegfried Lenz  
☐ Johann Sebastian Bach  
☐ Willy Brandt

1.4 Which of the following districts are districts of Hamburg?

☒ Altona  
☒ Wandsbek  
☒ Kreuzberg  
☒ Eimsbüttel  
☐ Findorf

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**Figure 158: View of the Page of the Exam Sheet**

[Back] – Navigates to the previously edited fields.

[Cancel] – The verifying will be canceled. Important: All unsaved corrections will be lost.

[Save and Exit] – The current status of the verifier, including the current view will be saved. Following this you will automatically change to the verification overview. Verification can be continued immediately or at a later date.

It is necessary to save the verification when your work is interrupted, for example.

The verifier does not only show doubtful marked answers but also examinee-IDs and point scores for open questions, if they are not marked neatly.

Reason for Display in Verification:

Filling degree of checkbox is marginal.

No valid checkbox found.

1/30

Selection of the participant (Scanned Question)

Please complete:

Examinee ID of the exam sheet no.: 1:

First name: John

Last name: Doe

2 1 3 2 2 ?

1 ☐ ☒ ☐ ☐ ☐
2 ☒ ☐ ☒ ☒ ☒
3 ☐ ☒ ☐ ☐ ☐
4 ☐ ☐ ☐ ☐ ☐
5 ☐ ☐ ☐ ☐ ☐
6 ☐ ☐ ☐ ☐ ☐
7 ☐ ☐ ☐ ☐ ☐
8 ☐ ☐ ☐ ☐ ☐
9 ☐ ☐ ☐ ☐ ☐
0 ☐ ☐ ☐ ☐ ☐

In order for your exam to be processed correctly please make sure you enter your student ID precisely into both of the fields provided for it. All pages are entirely individualized and cannot be replaced by pages of other exam sheets.

Recognized Mark / Revision

Examinee-ID

2 1 3 2 2

Cancel

Save and Exit

Exam Sheet

Back

Next

Figure 159: Verification: Examinee-ID

If two participants have accidentally marked the same examinee-ID on sheet sets with different serial numbers, a consecutive number will be added to the duplicate examinee-ID. It is possible to correctly assign the results with the help of the unique serial number (Page Link) afterwards.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Examinee-ID	Serial Numb	Where does	Explain the c	Which quest	Which additi	Is a Subunit	Which inforr	What has to	Please expla	Grade	Total Score
2	82567	1	1	1	3	2	1	1	2	1	B	12
3	121234_1	2	1	1	2	0	0	1	0	1	F	6
4	613457	3	1	1	3	2	1	2	2	0	B	12
5	121234_2	4	1	1	2	2	0	1	0	1	D	8

Doubled IDs with added consecutive numbers
Serial Number (Page Link)

Figure 160: Doubled Examinee-ID (CSV Score Export)

Upon completion of the verification for an exam, the verified results are automatically stored in the system, and the overview is displayed.

The verification is not finished until you have deleted the NonForms of a scanned stack of exam sheets. Please use the view of the NonForms as well as the button for deleting the NonForms.



Then the results will be written into the database and the status of the exam changes from “Web Verification” to “Evaluated”. The analysis can now be called up.

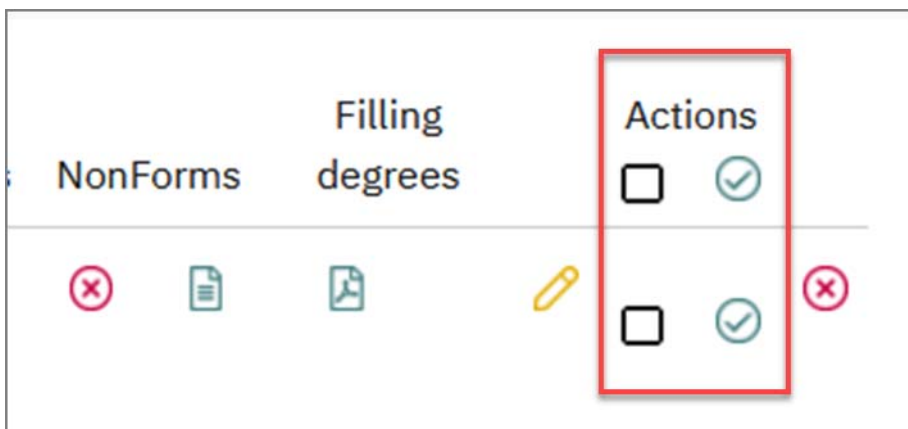
#### 5.17.4. Automatic Verification

To accelerate the process of verification, a number of cases can be verified automatically in the WebVerifier. The prerequisite for automatic verification is that the relevant option in the systems settings is activated by the administrator (“System Settings/evaexam Settings/Functions/Automatic Verification”).

**Note:**

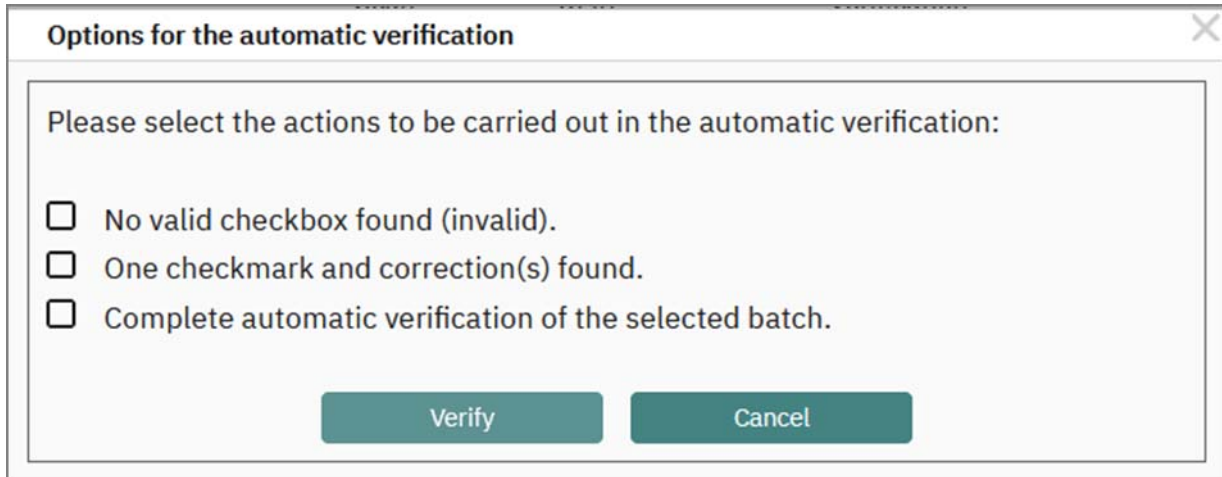
Please note that false readings cannot be entirely prevented when using automatic verification. When, for example, a participant has marked an answer option completely outside the checkbox, this data will be lost. Think carefully whether you want to use this function for your exam.

In the column verification, with the help of a checkbox, you can select the exam which is to be automatically verified.



**Figure 161: Select Automatic Verification**

After clicking the icon displayed next to the checkbox, a dialog opens which allows you to make further settings for the automatic verification.



**Figure 162: Selection Options for Automatic Verification**

The following options are available:

- No valid checkbox found (invalid): All cases, in which no valid checkbox is found for a question, are determined invalid.
- One checkmark and correction(s) found: All cases, in which a checkmark and one or more corrections is found are automatically determined valid with the corresponding checkmark.
- Complete automatic verification of the selected batch: The complete exam will be automatically verified, no further steps need to be taken. If the batch still appears in the table, click the yellow pen again to remove the batch from the list.

With one or several of the options selected, the verification is initiated by clicking on [Verify], the relevant cases are then filtered out of the list of elements to be verified. For this reason, please note that individual questions must be verified using the yellow pen if you have not selected complete automatic verification.

### 5.17.5. Verify Examinee-ID

If “Completion by participant” was chosen as the type of participant capturing, the examinee-ID must be verified. The VividForms Reader only recognizes the examinee-ID from the checked boxes. The numerical examinee-ID is used but for the purpose of verification in the WebVerifier. This also applies to the entry of the first names and surnames of the exam candidates.

If the examinee-ID cannot be read clearly, the whole header area of the page is shown as an image excerpt.

In the verification view the examinee-ID can be corrected by hand (see figure below), or even completely reentered. An entry field is available for every digit of the examinee-ID.

As in the following example the examinee-ID was corrected once and the filling degree of checkbox is marginal, you are informed about this by the verifier:

Reason for Display in Verification:

Filling degree of checkbox is marginal.

No valid checkbox found.

1/30

Selection of the participant (Scanned Question)

Please complete:

First name: John

Last name: Doe

Examinee ID of the exam sheet no.: 1:

2

1

3

2

2

2

1

2

3

4

5

6

7

8

9

0

1

2

3

4

5

6

7

8

9

0

1

2

3

4

5

6

7

8

9

0

1

2

3

4

5

6

7

8

9

0

1

2

3

4

5

6

7

8

9

0

In order for your exam to be processed correctly please make sure you enter your student ID precisely into both of the fields provided for it. All pages are entirely individualized and cannot be replaced by pages of other exam sheets.

Recognized Mark / Revision

Examinee-ID

2

1

3

2

2

Cancel

Save and Exit

Exam Sheet

Back

Next

Figure 163: Examinee-ID in the Verification

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### 5.17.6. Key control in the Verifier

There are different key shortcuts available, so that the WebVerifier can be used without a mouse. The short cuts work in most recent web browsers.

The actions are triggered by pressing the ALT key, together with another one.

Please note that not all key short cuts are available in every view.

Shortcut	Action
ALT+N	Look for a new batch
ALT+Q	Enlarge image excerpt
ALT+U	Mark question as invalid
ALT+P	Display page
ALT+C	Cancel
ALT+S	Save
ALT+F	Continue

**Table 2: Key shortcuts in the Verification**

## 5.18. Checking that the Exam is Complete

For paper exams, it is very important that you scan all the sheets and pages from the exam. In order to ensure that this is the case, evaexam checks whether you have scanned every page belonging to the exam.

Already during scanning the Scanstation will notice when pages of an exam sheets are missing. The batch then shows the status "Incomplete exam sheets". When clicking on the status you can check, which exam sheets are affected and which pages are missing.

**Process Scans - Batch Information**

**Identifier:** WEBSCAN\_220520\_143100\_62878a0499e76

**Current status:** Incomplete Exam Sheets (5460)

Created on: 20.05.2022 at 14:31:00

Total number of pages in batch: 6

A NonForm is a scanned page that is not recognized as a questionnaire.

**Number of NonForms: 1** [View NonForms](#)

The batch contains incomplete exam sheets. This may have different reasons: Single pages could be missing, there could be a double feed in the scanner or some pages may not have been recognized by the system (in this case this should have been indicated in the dataset consistency check). Please check the batch. For further information refer to the manual. The following exam sheets are incomplete (the sheet number is displayed in the upper right corner of the sheet):

Sheet 2 - missing page(s): 3

☐ Continue batch processing

☒ Cancel batch


[Proceed](#)

[Back](#)

**Figure 164: Scanstation Information on incomplete exam sheets**

You should by no means continue to process the forms but discard the batch in the Scanstation and check the paper batch. If the missing pages are contained in the batch, scan the batch again and make sure that the scanner does not produce double-feed. Should the problem still exist, it may be necessary to maintain the scanner. For further information please refer to the Scanstation manual and note the instructions in chapter 5.16. "Trouble Shooting for Paper Processing".

If you have ignored the message when scanning the forms and have continued to process the batch, evaexam will display a note that the exam contains incomplete exam sheets when you open the report or the CSV data.

 dokuserver.lab.evasys.de

This exam contains incomplete exam sheets. This may have an effect on the results of individual participants. Please use the check for completeness in the exam details to identify missing sheets. Do you still want to continue?

[OK](#) [Abbrechen](#)

**Figure 165: Warning - Exam not complete**

In the CSV raw data you can already see if a dataset has gaps:

Examinee-ID	Pagelink	How many in Hamburg is a	Which of the Hamburg hat	Marseille	Dresden	Osaka	León	Chicago		
112233	1	3	1	3	1	2	5	1	3	4
223234	2	1	1	1	0	2	5	1	3	4
445543	3	3	1	1	0	2	5	1	3	4
112379	4	3	1	2	1					
456732	5	2	1	3	0	2	5	1	3	4
342122	6	2	1	1	1	2	5	1	3	4
556698	7	3	1	1	0	2	5	1	3	4

**Figure 166: Incomplete data set**

You can use the option 'Check that the Exam is Complete,' found under Exam Details, to open a spreadsheet containing information on the quire number, participant ID, verification status, missing pages, and whether or not the exam is complete.

**Actions**

Create additional individualized exam sheets:

Request

Activates the display of exams in the LMS via LTI®

Finish Data Collection, Close Exam

Grading Scale: 

OK

Change grading scale for the exam

Rename Exam

Restore Exam

Move Exam

Assign rights for shared scoring

Delete Exam

**Exam Data**

Results in PDF format

Exam Results Report

Show

Auto Credit

Scores in CSV format

Raw data in CSV format

Check for Completeness

Show recognized exam sheet originals as PDF

ALL

Show

Delete original scanned files of recognized exam sheets

**Figure 167: Exam Details - Checking that the Exam is Complete**

You can view a list of all returns in the new window.

Check for Completeness					
Serial Number	Sheet	Student ID	Verified Pages	Missing Pages	Status
2	2	123456	2/3	3	Incomplete
1	1	213222	3/3	-	Complete

Back

**Figure 168: Listing of Complete/Incomplete Exams**

With the help of the list you can recognize which exam sheet of which participant is affected. In this example the second page of exam sheet no. 3 is missing.

You can now search for the paper sheet in question and scan the complete exam sheet again. The existing data set in the system will be overruled by the complete data set.



## 6. Paper exam with separate question and answer sheet

In principle, paper exams with separate answer sheet are conducted the same way as paper exam with answers on the exam sheet (compare chapter 5. "Creating a Paper Exam - Default Procedure").

**Create Exam - Type of Exam**

Please select the type of exam:

☐ Combined question and answer sheet

☒ Separate question and answer sheet

☐ Answer sheet only

☒ Use template

☐ generate dynamically

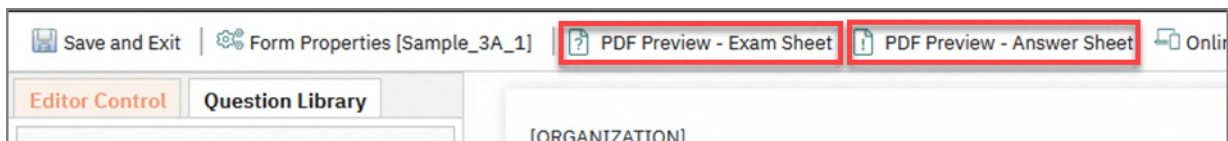
Method for flexible and standardized exams. The exam content is created in evaexam. Only a restricted number of closed question types is available, but for these question types there are comprehensive options for exam analysis (reports, item analysis). Questions and answer boxes are located on separate sheets. After the exam has been carried out, only the answer sheets have to be scanned. The exam sheet has to be created beforehand with the VividForms Editor.

Cancel Back Next

**Figure 169: Exam with separate question and answer sheet**

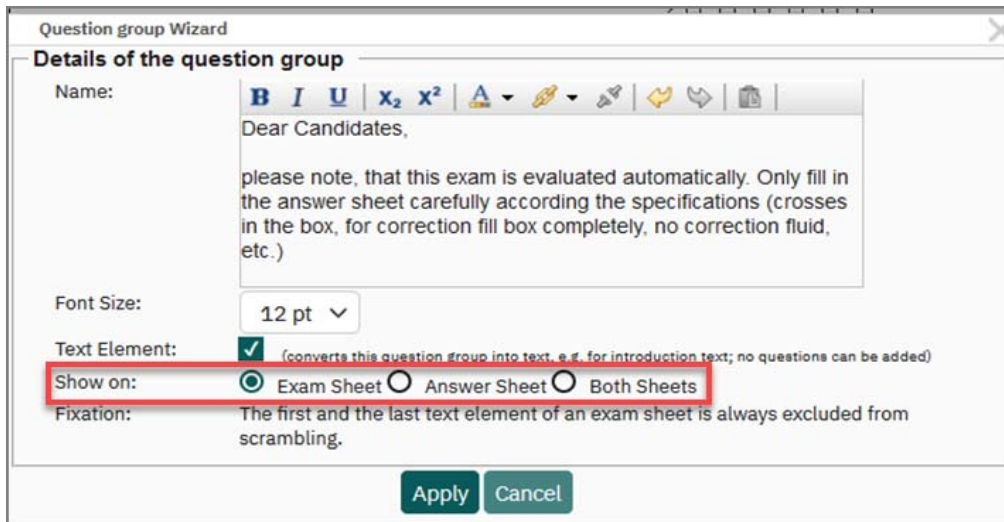
There are only a few things that have to be considered:

- When creating the exam sheet in the VividForms Editor there are two preview functions available: the PDF preview for the exam sheet and the PDF preview for the answer sheet.



**Figure 170: Preview functions in the VividForms Editor**

- If you convert a question group into a text element (for example, if you want to add an introductory text to your sheet), you can decide whether this text is supposed to be only on the exam sheet, only on the answer sheet or on both sheets.



The 'Question group Wizard' dialog box is shown. It has a title bar with a close button. The main section is titled 'Details of the question group'. It contains a 'Name:' field with a rich text editor toolbar (bold, italic, underline, subscript, superscript, text color, background color, bulleted list, numbered list, link, unlink, insert image, insert table) and a text area containing the text: 'Dear Candidates, please note, that this exam is evaluated automatically. Only fill in the answer sheet carefully according the specifications (crosses in the box, for correction fill box completely, no correction fluid, etc.)'. Below this is a 'Font Size:' dropdown set to '12 pt'. The 'Text Element:' section has a checked checkbox with the text '(converts this question group into text, e.g. for introduction text; no questions can be added)'. The 'Show on:' section has three radio buttons: 'Exam Sheet' (selected), 'Answer Sheet', and 'Both Sheets'. The 'Fixation:' section has a text label: 'The first and the last text element of an exam sheet is always excluded from scrambling.' At the bottom are 'Apply' and 'Cancel' buttons.

Figure 171: Text element: Display options

- In the exam sheet management there are also two preview functions available.



The 'Exam Sheet Management' table has columns: Abbreviation, Title, Page Number, Date, Engine, and Actions. The first row shows 'Sample\_3A\_1' with page number 1, date 20.05.2022, and engine VF Editor. The Actions column contains several icons: a green circle, a document icon, a document with a red X, a document with a question mark (highlighted with a red box), a document with an exclamation mark, a document with a checkmark, a document with a plus sign, and a pencil icon.





Abbreviation	Title	Page Number	Date	Engine	Actions
Sample_3A_1		1	20.05.2022	VF Editor	       

Figure 172: Exam Sheet Management

- After having generated the exam with the help of the exam wizard, a PDF file containing the answer sheets will be downloaded. The question sheet can be downloaded in the exam details, as can additional answer sheets.



### Exam Details

Exam	Sample exam with answer sheet
Folder	Computer Sciences
Type	Paper based (Hard Copy)
Participants	Entry of student ID by participants
Exam sheet	SampleEx02
Grading Scale	no scale assigned
Status	In progress
Exam Created on	20.05.2022 at 14:55:19

### Actions

Create additional individualized exam sheets:   

Request

Download answer sheets

Administrate participants

Show Exam Sheet

Download question sheet

Activates the display of exams in the LMS via LTI®

Finish Data Collection, Close Exam

Grading Scale: no scale assigned

OK

Change grading scale for the exam

Rename Exam

Figure 173: Download question and answer sheets

## 7. Paper exam with answer sheet only

If activated by the administrator, paper exams can be conducted with answer sheets only. You can either use a predefined template or create your own dynamical answer sheet.

**Create Exam - Type of Exam**

Please select the type of exam:

☐ Combined question and answer sheet

☐ Separate question and answer sheet

☒ Answer sheet only

☒ Use template

☐ generate dynamically

Cancel Back Next

**Figure 174: Exam with answer sheet only**

In principle, paper exams with answer sheets only are conducted the same way as paper exam with answers on the exam sheet (compare chapter 5. "Creating a Paper Exam - Default Procedure"). However, both types show some specific features which will be explained in the following.

### Note:

Please note that this procedure comes along with a restricted range of functionalities compared to the other paper exam procedures. It only supports Single Choice questions and only allows for a restricted scope of analysis as the exam content is not available in EvaExam.


## 7.1. Use Template

If you select the option „Use Template“ you can select a predefined answer sheet which contains check boxes for up to 100 single choice questions with five answer options each.

Below, you can define the number of questions you wish to use in your exam. If your exam contains less than 100 questions, please make sure to restrict the number, as only the defined number of questions will show up in verification and will be analyzed. If you forget to restrict the number, the remaining unanswered questions will be displayed in the verifier which causes unnecessary workload. Please note, that you cannot undo or change this setting afterwards.

### Create Exam - Define Exam Sheet and Question Number

Please select an exam sheet:

Exam\_100en


To be able to select your own exam sheet, the sheet has to be created beforehand in the menu "Actions" by clicking "Create exam sheet". If you have not yet created an exam sheet, please cancel the process and first create the sheet.

As an alternative, you can create your exam using only an answer sheet, provided this function has been enabled by the administrator. To do this, move two steps back in the wizard and select the option "Answer sheet only" when defining the type of exam.

Please select the number of questions:

100

Please define the number of questions contained within your exam. After you have conducted the exam, only the defined number of questions will be analyzed. If your exam contains less questions than available on the answer sheet, make sure to restrict the number of questions. Otherwise, the remaining unanswered questions will be displayed in the verifier.

Please note that you cannot undo or change this setting after you have created the exam.

Cancel

Back


Next

**Figure 175: Select answer sheet**

When using the answer sheet template, it is not possible to import participants for the exam. The participants have to identify by placing their information in the header section. Here they can enter their first and last name and enter their examinee-ID with the help of the matrix field. You can use 10-digit examinee-IDs at maximum. When the examinee-ID is shorter than 10, the participants have to fill in the matrix left-aligned.

[EXAM]

[AUTHOR]



First Name: \_\_\_\_\_

Last Name: \_\_\_\_\_

Please fill in your examinee-ID carefully and left-aligned using the matrix on the right.  
This way, your exam can be unambiguously assigned to your person.

Mark as shown: ☐ ☒ ☐ ☐ ☐

Correction: ☐ ☒ ☐ ☒ ☐

Please use a ball-point pen or a thin felt tip. This form will be processed automatically.

Examinee-ID:

→ to be assigned									
0									
1									
2									
3									
4									
5									
6									
7									
8									
9									

T F A B C D E	T F A B C D E	T F A B C D E	T F A B C D E
1. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	26. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	51. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	76. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	27. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	52. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	77. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	28. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	53. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	78. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	29. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	54. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	79. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
5. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	30. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	55. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	80. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	31. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	56. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	81. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
7. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	32. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	57. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	82. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
8. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	33. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	58. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	83. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
9. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	34. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	59. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	84. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
10. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	35. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	60. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	85. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
11. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	36. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	61. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	86. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
12. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	37. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	62. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	87. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
13. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	38. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	63. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	88. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
14. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	39. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	64. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	89. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
15. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	40. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	65. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	90. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
16. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	41. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	66. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	91. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
17. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	42. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	67. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	92. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
18. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	43. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	68. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	93. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
19. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	44. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	69. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	94. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
20. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	45. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	70. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	95. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
21. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	46. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	71. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	96. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
22. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	47. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	72. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	97. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
23. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	48. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	73. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	98. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
24. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	49. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	74. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	99. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
25. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	50. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	75. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	100. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

SAMPLE

Figure 176: Answer Sheet Template

## 7.2. Generate dynamically

If you have selected the option “generate dynamically”, you can have the system dynamically create you own answer sheet.

In this case, you first have to decide on the way of participant capturing on the answer sheet. For further information, compare chapter 5.4. "Create Exam - Participant Capturing".

Furthermore, you can decide on the structure and length of your answer sheet.

**Create Exam - Exam Options**

Please select the type of participant capturing:

☒ Entry of student ID by participants  
The exam sheet does not contain participant information. The exam participants have to identify by manually entering their student ID.

☐ Participant import  
The participant data is already connected to the individualized exam sheets. To do this, you will have to import participant data (name, student ID) in a later step.

---

Generate answer sheet

Please select the maximum number of answer options:

5 - ABCDE

Please select the settings for the header area of the answer sheet:

Standard

Please select the number of questions:

20

Preview

Cancel

Back Next

**Figure 177: Exam options for dynamical answer sheets**

The following options are available:

### Maximum number of answer options

You can select if your single choice questions on the answer sheet are supposed to have two (AB), three (ABC), four (ABCD) or five (ABCDE) answer options. Please note, that this is a uniform number for all questions on the sheet.

## Header settings

Select how the header of the answer sheet shall look like. If you select “Standard”, the header will look like the default header of a new VividForms Editor sheet, displaying the matrix field for the examinee-ID in the way you have defined it in the settings menu.

Instead, you can also take over the header of another exam sheet you have already created with the VividForms Editor. This can be useful if you wish to import participants for the exam and if you do not want to display the header section for the manual entry of the examinee-ID. To do a selection here, you first have to create an exam sheet in the VividForms Editor with the corresponding header settings. For further information compare chapter 3.3. "Edit Header Section".

### Number of questions

Select, how many questions the answer sheet is supposed to contain. With a default header, a maximum of 455 questions is possible.

A sample answer sheet with 35 questions and a default header could look like this:

DRAFT

Exam sheet 0

evaexam

Mark as shown: ☐ ☐ ☐ ☐ Please use a ball-point pen or a thin felt tip. This form will be processed automatically.

Correction: ☐ ☒ ☒ ☐ Please follow the examples shown on the left hand side to help optimize the reading results.

**Please complete:**

First name: \_\_\_\_\_

Last name: \_\_\_\_\_

In order for your exam to be processed correctly please make sure you enter your student ID precisely into both of the fields provided for it. All pages are entirely individualized and cannot be replaced by pages of other exam sheets.

**Examinee ID of the exam sheet no.: 0:**

1	2	3	4	5	6	7	8	9	0
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	29	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	37	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	38	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	39	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	41	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	42	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Figure 178: Dynamically created answer sheet with 35 questions**



## 7.3. Create Exam - Define Answer Key

In this step you can decide if you want to define an answer key for the answer sheet. With the help of the answer sheet you can define, how many scores are awarded for which answer option.

If you do not wish to define an answer key at this point, you can do this later in the exam details, if required. If you do not define an answer key at all, then you will only be able to download the raw data of the exam after having captured the answer sheets. You will have to do the scoring outside EvaExam.

If you define an answer key, you will be able to access the exam results (overall report and report per participant, raw data, export of scores etc.) after having captured the answer sheets. Please note, that all questions are regarded as single choice questions, meaning that only one answer per question is correct and only one crossed check box is valid in verification. If participants check more than one box for a question, this will lead to invalid results.

### Create Exam - Define answer key

Please select if you want to define an answer key for the answer sheet:

☒ Not define answer key

☐ Define answer key for the answer sheet in the next step

If you do not define an answer key, you can only access the raw data of the exam after having scanned the exam sheets. You will have to do the scoring manually based on the raw data.

If you define an answer key, you can access the exam results after having scanned the exam sheets. Please note, that all questionnaires on the answer sheet are evaluated as single choice questions, which means that only one answer per question is allowed and in verification only one checkmark is valid.

CancelBackNext

**Figure 179: Decide on answer key**

In the following entry mask you will now be able to define scores.

To award a point for an answer, please left-click into the corresponding box. You can increase or decrease the point value by clicking multiple times (left/right) or pressing the arrow keys (up/down). If you prefer using the keyboard, you can use the tabulator key to move from one box to the next.

Enter the desired scores for the number of questions you wish to use in the exam. If you use the predefined answer template, the sheet can contain 100 questions at maximum. If your exam has only 35 questions, just enter the answer key for the first 35 questions. If you have created the answer sheet dynamically, then only the defined number of questions has to be edited.

### Create Exam - Define answer key

Please note, that all questions on the answer sheet are single choice questions.

To award a point for an answer, please left-click into the corresponding box. You can increase or decrease the point value by clicking multiple times (left/right) or pressing the arrow keys (up/down).

	A	B	C	D	E
1.	1	0	0	0	0
2.	0	1	0	0	0
3.	1	0	0	0	0
4.	0	0	0	1	0
5.	0	0	1	0	0
6.	0	1	0	0	0

**Figure 180: Define answer key**

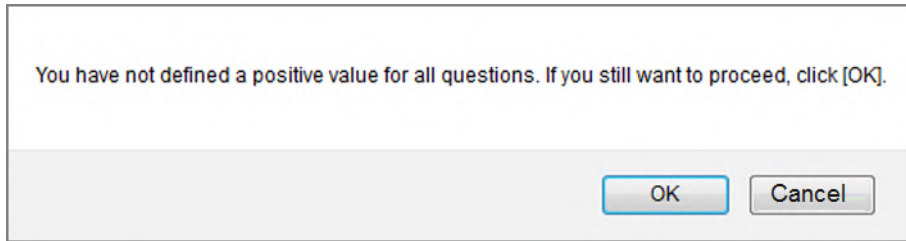
Click [Next] if you have defined all scores. The system will check if you have defined more than one positive score for a question. If this is the case, a warning message will be shown. If you have defined more than one positive score on purpose (for example to award an answer which is half-correct with 0.5 points), then you can proceed. If you have defined more than one positive answer by accident, then check your entries.

You have deposited positive points for more than one answer option for at least one question. Technically, this is not a problem, but it may be an oversight. Please check your input. If you still want to proceed, click [OK].

**Figure 181: Warning message for more than one positive score**

There will also be a warning message if you have not defined a score for all of your question.





**Figure 182: Warning message for missing scores**

In the next two steps, enter the number of exam participants and confirm the exam summary. You will then be provided with a PDF file containing the answer sheets in the required number which you can store and print. For further information, compare chapter 5.11. "Important Information about Paper Processing" and following chapters.

In the exam details, you can edit the answer key once again, if required, or define a new answer key.

**Exam Details**

Exam	Sample exam
Folder	Computer Sciences
Type	Paper based (Hard Copy)
Participants	Entry of student ID by participants
Exam sheet	22GA4DYK
Grading Scale	no scale assigned
Status	In progress
Exam Created on	23.05.2022 at 16:20:26

**Actions**

Create additional individualized exam sheets:   

Request

Administratre participants  
Activates the display of exams in the LMS via LTI®

Finish Data Collection, Close Exam

Grading Scale: 

no scale assigned

OK

Change grading scale for the exam

Edit Answer Key

Download Answer Key

Rename Exam

### Edit answer key

## 8. Creating an Online Exam

Evaexam offers different ways to check the learning level or to perform an exam online. There are three different kinds of online exams available:

- Online Exam (see chapter 8.1. "Online Exam")  
A non-anonymous online exam in PSWD procedure. Only users who receive an individual password (PSWD) are allowed to participate.
- Online Practice (see chapter 8.2. "Online Practices")  
A learning tool for participants. Participants can check their answers. Can either be carried out anonymously or non-anonymously.
- Online Quiz (see chapter 8.3. "Online Quiz")  
A quiz that can be performed live at an event. The participants can, for example, take part by scanning a QR code with a mobile device. Can either be carried out anonymously or non-anonymously. It is not possible to use the QR code together with the time limit function due to technical reasons.

**Note:**

Evaexam uses a volume based license. This means that for each processed exam sheet set one volume unit will be subtracted after the verification has taken place. The available volume displayed in the Scanstation can be imprecise if unverified batches are in the system.

Before you create exams, you should consult your evaexam administrator about the needed volume.

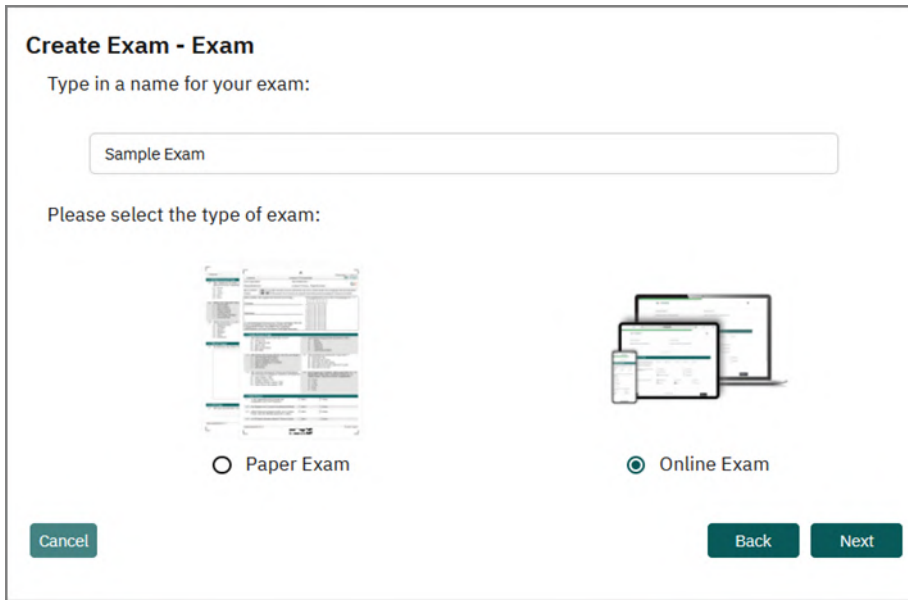
Results for online practices and online quizzes are not deducted from the licensed volume at all.

The different forms of online exams are created nearly the same way. The specific characteristics will be briefly explained in the following chapters.

## 8.1. Online Exam

To create an online exam, proceed as described for paper exams: Click the button [Create New Exam] in your folder and follow the assistant.

In the second step of the assistant, select the option “Online Exam”.



**Create Exam - Exam**

Type in a name for your exam:

Sample Exam

Please select the type of exam:

☐ Paper Exam

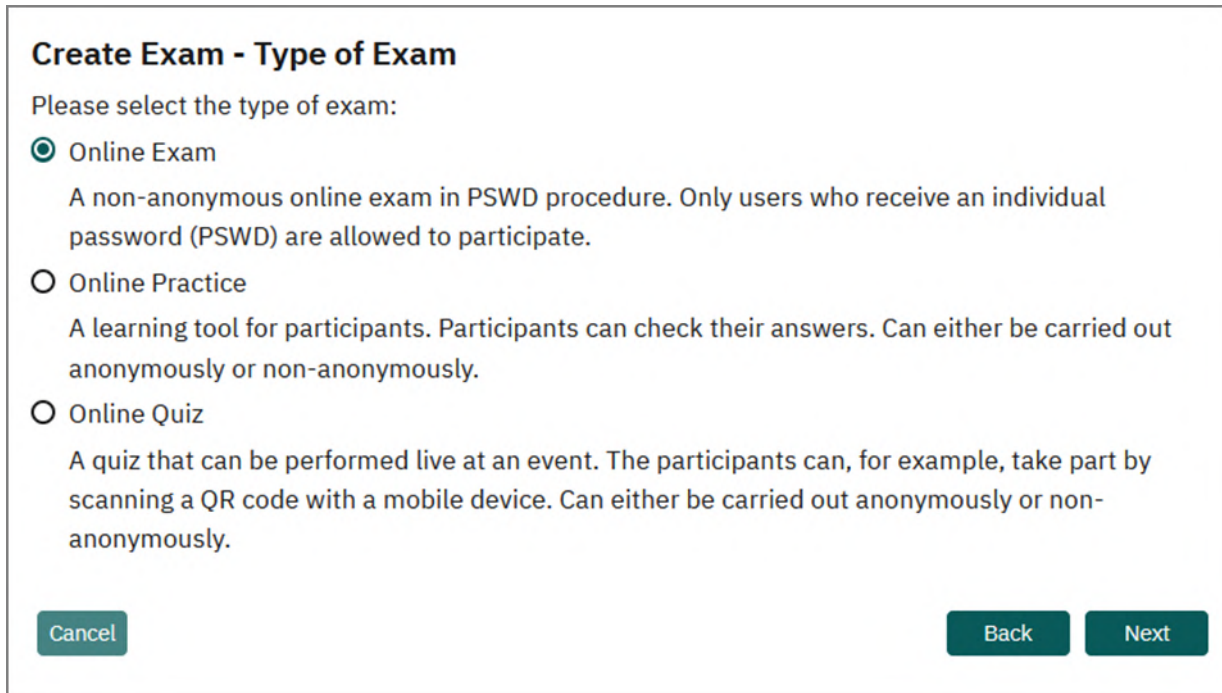
☒ Online Exam

Cancel Back Next

**Figure 183: Generate Online Exam**

### 8.1.1. Select Type of Exam

In the next step select the type of online exam you want to conduct (exam, practice, quiz) and click [Next].



**Create Exam - Type of Exam**

Please select the type of exam:

- ☒ **Online Exam**  
A non-anonymous online exam in PSWD procedure. Only users who receive an individual password (PSWD) are allowed to participate.
- ☐ **Online Practice**  
A learning tool for participants. Participants can check their answers. Can either be carried out anonymously or non-anonymously.
- ☐ **Online Quiz**  
A quiz that can be performed live at an event. The participants can, for example, take part by scanning a QR code with a mobile device. Can either be carried out anonymously or non-anonymously.

**Cancel** **Back** **Next**

**Figure 184: Select the type of online exam**

### 8.1.2. Exam Options

In the next step you can select the kind of participant capturing. When you select the option “Entry of examinee-ID by participant” the participants have to identify with his/her examinee-ID so that later on the results can be assigned to him/her. When you select the option “Participant import” you have to import participant data (name, examinee-ID, email address etc.). Each participant receives his/her own individualized PSWD. This way no further identification will be necessary.

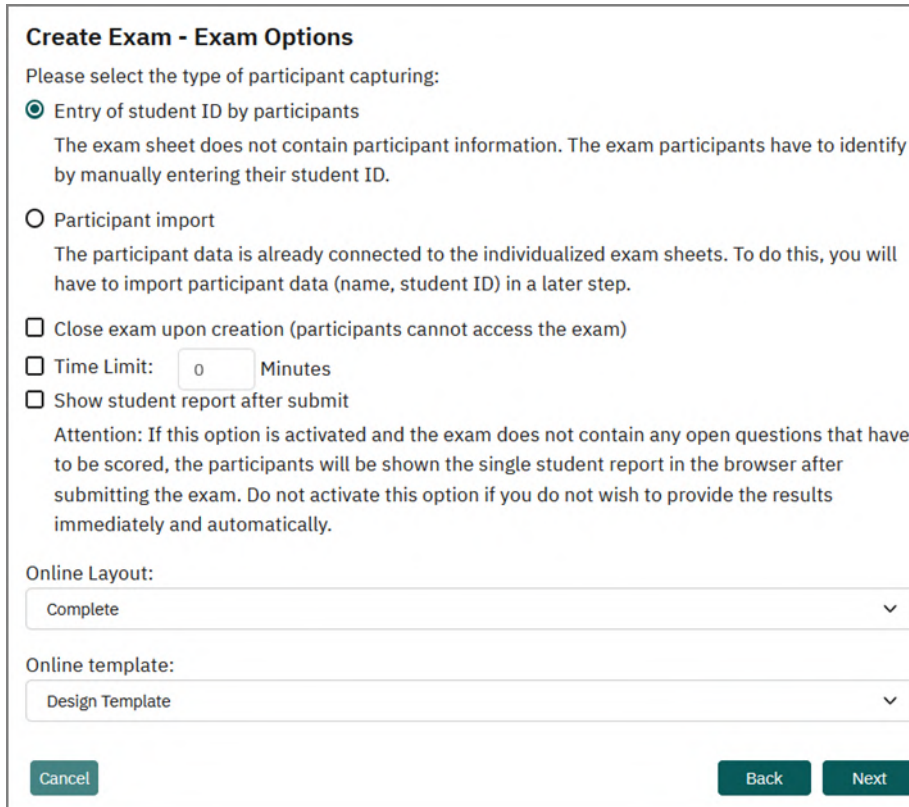
If desired, you can define a time limit (in minutes) for the exam. When the time has expired, the exam will be automatically closed and the participant’s data will be transferred to the server.

You can furthermore select an option that will create a report for the exam participant once they have completed the exam. The report will open as a PDF file in the browser directly after the participant has submitted the form. This setting option causes participants to receive the results report after completing the exam. However, this only happens if the exam contains closed questions only. For further information see chapter 10.2.2. “Student Results Report for the Participants”.

Finally, you can set the online layout used during the exam. There are four options: ‘complete’ (all questions below each other), ‘per page’ (one page in the Editor is one

page in the online exam), 'per chapter' (one question group is one page in the online exam) and 'per question' (each question on its own page).

Via "Online template" the layout of your exam can be defined (see chapter 8.5. "Online Templates").



**Create Exam - Exam Options**

Please select the type of participant capturing:

- ☒ Entry of student ID by participants  
The exam sheet does not contain participant information. The exam participants have to identify by manually entering their student ID.
- ☐ Participant import  
The participant data is already connected to the individualized exam sheets. To do this, you will have to import participant data (name, student ID) in a later step.

☐ Close exam upon creation (participants cannot access the exam)

☐ Time Limit:  Minutes

☐ Show student report after submit  
Attention: If this option is activated and the exam does not contain any open questions that have to be scored, the participants will be shown the single student report in the browser after submitting the exam. Do not activate this option if you do not wish to provide the results immediately and automatically.

Online Layout:

Online template:

**Figure 185: Choose Online Exam Options**

### 8.1.3. Distribute PSWDs

Follow the assistant and select the exam sheet and the number of variants and enter the number of participants as described above for the paper exams. After confirming the exam summary and clicking the button [Apply], a PDF file with a list of PSWDs will be offered for download.

You can then retrieve the PSWD list by opening the details of the exam or via the exam overview. In the details of the exam you will find the option "Show PSWDs in browser" in the "Actions" section:

Actions	
	Exam Dashboard
	Show PSWDs in browser
	Receive PSWDs by email
	Send PSWDs by email to respondents
	Download PSWDs in CSV File
	Generate more PSWDs: <input type="text" value="0"/> <span>Generate</span>
	<input type="checkbox"/> Time limit for exam: <input type="text" value="0"/> Minutes <span>Apply</span>
	Preview Online Exam
	Administrate participants
	Scheduled Tasks
	Activates the display of exams in the LMS via LTI®
	Finish Data Collection, Close Exam
	Grading Scale: <input type="text" value="no scale assigned"/> <span>OK</span>

**Figure 186: Show PSWDs in browser**

In the exam overview, you can access the PSWD list by clicking on the symbol in the "Request" column:

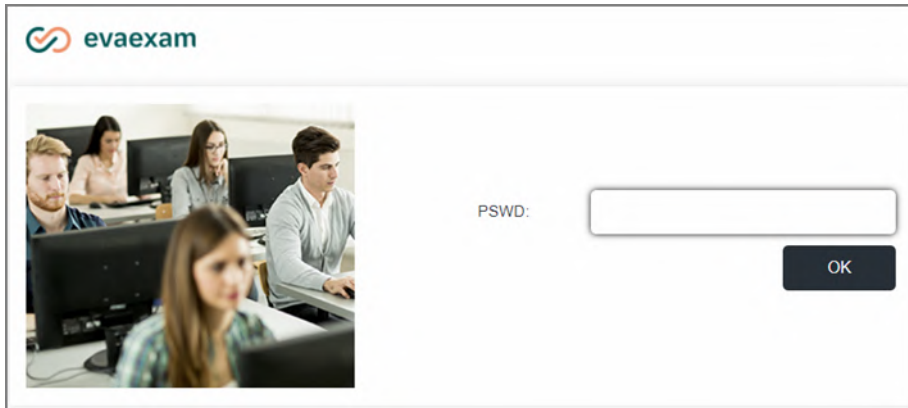
Type	Name	Details	Status	Template	Created	Processed	Sheets	# Forms	Original Scans	Report	Export	Actions	Request
	Word Basic Knowledge		Scoring		07.12.2018	07.12.2018	12	6					
	Word Basic Knowledge		Evaluated		11.12.2018	11.12.2018	5	1					

**Figure 187: Requesting the PSWD list using the exam overview**

The PSWD list contains a PSWD card for each exam participant. In the upper section these cards show the URL for the online exam, in the center section the PSWD, i.e. the password for the online exam, is printed.

If you have selected the option "Pre-filled (Participant Import)" when creating the exam and imported participants for the exam (see above chapter 5.9.2. "Type of Participant Capturing: Participant Import"), the name of the participants will be displayed in the lower section of the PSWD card.

Before the exam, the PSWD document has to be printed, the single cards have to be cut out and distributed to the participants. The participants type the URL into the address bar of the browser. An entry mask opens where they can enter the PSWD.



**Figure 188: Login Screen for Online Exams**

After entering the PSWD, the participant is directed to a start page. If no participant data has been imported, the participant must identify by entering the participant ID. The ID must be stored in the correct format (including separator). For more information on the start page, see chapter 8.1.6. "Start Page for Participants".



**Botany**

Access to the exam is activated.

Exam duration: **30 Minutes**

**Welcome to your online exam!**

Please note the following instructions for taking the exam:

- Ensure a quiet and distraction-free working environment.
- Use a laptop or desktop PC to take the exam.
- Make sure you have a stable internet connection.
- Use the Chrome, Firefox or Edge browser and close all other windows and applications unless required for the exam.
- When the exam is unlocked and you are ready, click the [Start Exam] button.

☐ \* I hereby swear and affirm that I personally completed this exam without any outside assistance.

☐ \* I further affirm that I attended the course for at least an amount of time equal to the credit hours prior to taking the exam.

Student ID (NNNNNN)

123456

**Begin Exam**

**Sign off from the exam**

entering the examinee ID is necessary

**Figure 189: Start Online Exam**

After clicking on [Begin Exam], the ID entered is displayed to the participant once again for security reasons. It must be confirmed by clicking on [OK].

dokuserver.lab.evasys.de says

Please confirm your input.

Examinee ID: 123456

**OK** **Cancel**

**Figure 190: Confirmation of the ID**

If participant data has been imported for the exam, the exam participant ID does not need to be entered. The PSWD is already linked to the participant ID, so no further verification is required.

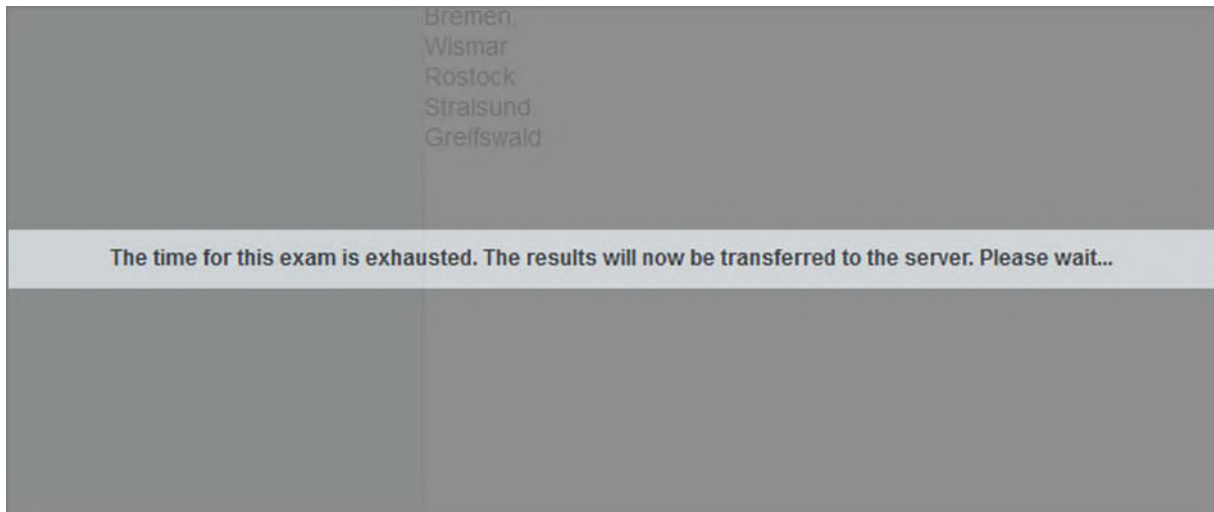
The exam sheet is displayed. If a time limit has been set for the exam, a time bar appears in the upper area showing the remaining time in minutes.

The time runs from the moment when the participant has confirmed the ID by clicking the [OK] button. If no ID entry is required, it runs from the moment the participant clicks [Begin Exam] and the exam has loaded.

The screenshot displays the Evaexam online exam interface. At the top, a green progress bar shows '00:28' remaining. Below it, the 'evaexam' logo is on the left and a help icon is on the right. The user information section shows 'evaexam Academy' and 'Demo Subunit' on the left, and 'Donna Harwood' on the right. A dark green header bar indicates '1 First Group'. The main content area contains two questions: '1.1 Please explain how to create a subgroup report:' with a large text input box, and '1.2 Is it possible to change user rights afterwards?' with three radio button options: 'Yes, no problem as Administrator', 'Yes, but only with accordance of the user', and 'No, that is not possible in the current version'.

**Figure 191: Online Exam with Time Limit**

Once the participant has completed the exam sheet, he/she can transfer it to the server at the end by clicking on the [Submit] button. If the participant does not succeed in submitting the form within the specified time, the exam will be closed automatically after the time has elapsed and the data will be transferred automatically.



**Figure 192: Automatic Termination of the Exam**

### 8.1.4. Send PSWDs by email

There are several alternative ways to provide exam participants with PSWDs. If you want to do a learning control it is, for example, possible to send participants PSWDs by email. To do this, open the exam details and select the option "Send PSWDs to respondents" in the "Actions" section.

Actions	
	Exam Dashboard
	Show PSWDs in browser
	Receive PSWDs by email
	Send PSWDs by email to respondents
	Download PSWDs in CSV File
	Generate more PSWDs: <input type="text" value="0"/> <span>Generate</span>
	<input type="checkbox"/> Time limit for exam: <input type="text" value="0"/> Minutes <span>Apply</span>
	Preview Online Exam
	Administrate participants
	Scheduled Tasks
	Activates the display of exams in the LMS via LTI®
	Finish Data Collection, Close Exam
	Grading Scale: <input type="text" value="no scale assigned"/> <span>OK</span>

**Figure 193: Send PSWDs to exam participants**

If you have imported participants, the system uses the imported email addresses when sending PSWDs. If you have not imported participant data, you can manually enter email addresses in the entry box (separated by paragraph).

### Send PSWDs by email to respondents

Exam: Online Sample Exam - Examiner: Harwood

Note: After clicking on send and sending the email, please do not use the browser function REFRESH or RELOAD (F5), as this results in the submission being repeated.

**There are 30 PSWDs available.**

Recipient:

c.hernandez@example.com  
b.hellman@example.com  
k.krueger@example.com  
l.liberman@example.com

Sender (name):

Sender (email):

**Figure 194: Mailing list**

After clicking on [Submit], the email text is displayed and can be edited if required. The access data for the exam are automatically entered by the system using placeholders. The following placeholders are available:

[EXAM_START_LINK]	Direct link to the start page of the exam. The PSWD is included in the link, no separate entry is required.
[SERVER]	Link to the input page for PSWDs. Must always be used in combination with one of the PSWD placeholders so that participants can access the exam.
[PSWD]	PSWD in 14-digit format.
[SHORT_PSWD]	PSWD in 5-digit short format (unless prevented by default in the system; in this case, the placeholder is also replaced by a 14-digit PSWD).

By default, the placeholder [EXAM\_START\_LINK] is included in the text template, unless another placeholder has been stored by the administrator. Please note that either the [EXAM\_START\_LINK] or a combination of [SERVER] and [PSWD] or

[SHORT\_PSWD] must be included in the text, otherwise the participants cannot access the exam.

Click the button [Check emails] to check the correct syntax of the email address. Click [Send Email] to start the mailing process. Please do not close the window before all emails have been sent successfully.

Edit Email Text:

Subject: Online Exam

Font
Arial
Size
small

Dear participant,

This email entitles you to participate in an online exam. To start the exam, please open the following link:

[EXAM\_START\_LINK]

Yours sincerely  
the exam officer

☐ Use this text as the default for the Exam sheet.

Email List

No.	Email	Status
1	c.hernandez@example.com	Check Emails for Correct Syntax
2	b.hellman@example.com	Check Emails for Correct Syntax
3	k.krueger@example.com	Check Emails for Correct Syntax
4	l.liberman@example.com	Check Emails for Correct Syntax

Check emails

Send Email

Cancel

**Figure 195: Send Emails**

### Hint:

All emails which are sent directly from the system are logged in the “Deliveries” menu in the main menu “Info”. This way you can check the mailing status.

As a further option PSWD cards can be equipped with a QR code. Participants can scan the code with the help of a mobile device and the corresponding app and thereby can take part in the quiz with their mobile phone. If you want to use this function, the use of QR codes has to be activated by the administrator in the System Settings

(menu “System Settings/evaexam Settings/Online Exams/Format PSWD document”, select the option “6 = 3x6 PSWDs per page (Letter) with QR Code”.

**Note:**

Please note that the simultaneous use of QR code and time limitation is not possible for technical reasons. Therefore, the PSWD format without QR code will be used in the appropriate paper size when using the time limitation.

In addition to sending the links to online exams by e-mail, the access can also be provided in the connected learning management system (LMS). This form of providing exam content requires that the so-called LTI® interface is activated and configured in the administrator account of your evaexam system. If you want to know whether a connection to your LMS exists, please contact your evaexam or IT administrator.

If there is a connection to the LMS used in your organization, you can activate the display of the link to the exam in the exam details or in the exam list by clicking on the doctor hat icon:

Actions	
	Exam Dashboard
	Show PSWDs in browser
	Receive PSWDs by email
	Send PSWDs by email to respondents
	Download PSWDs in CSV File
	Generate more PSWDs: <input type="text" value="0"/> <span>Generate</span>
	<input type="checkbox"/> Time limit for exam: <input type="text" value="0"/> Minutes <span>Apply</span>
	Preview Online Exam
	Administrate participants
	Scheduled Tasks
	Activates the display of exams in the LMS via LTI®
	Finish Data Collection, Close Exam
	Grading Scale: <input type="text" value="no scale assigned"/> <span>OK</span>
	Change grading scale for the exam
	Rename Exam
	Move Exam
	Assign rights for shared scoring

**Figure 196: Activate display of exams in the LMS in the exam details**

For more information about the LTI® interface and the presentation of content in learning management systems, please refer to chapter 12. "Display of Exams in Learning Management Systems".

### 8.1.5. Online Exam with Time Control

Evaexam offers the possibility to run online exam formats (online exam, online exercise and online quiz) time-controlled. In this way, you can prepare an online exam in advance but only enable the possibility to log in to the exam at a later time.

The activation of this function is exam related. This means that time control can be individually assigned to each online exam.

The following actions can be defined:

- Allow exam entry
- Lock exam entry

If desired, only one of the two operations can be defined. The actions are managed separately in scheduled tasks. The corresponding "Scheduled Tasks" menu can be accessed through the details of an exam in the "Actions" section:

Actions	
	Exam Dashboard
	Show PSWDs in browser
	Receive PSWDs by email
	Send PSWDs by email to respondents
	Download PSWDs in CSV File
	Generate more PSWDs: <input type="text" value="0"/> <span>Generate</span>
	<input type="checkbox"/> Time limit for exam: <input type="text" value="0"/> Minutes <span>Apply</span>
	Preview Online Exam
	Administrate participants
	<b>Scheduled Tasks</b>
	Activates the display of exams in the LMS via LTI®
	Finish Data Collection, Close Exam
	Grading Scale: <input type="text" value="no scale assigned"/> <span>OK</span>
	Change grading scale for the exam
	Rename Exam
	Move Exam
	Assign rights for shared scoring

**Figure 197: Scheduled Tasks in the Exam Details**

To prevent early logins by the examinees, you can select in the exam wizard that the exam is first marked as "Closed":



### Create Exam - Exam Options

Please select the type of participant capturing:

☒ Entry of student ID by participants  
The exam sheet does not contain participant information. The exam participants have to identify by manually entering their student ID.

☐ Participant import  
The participant data is already connected to the individualized exam sheets. To do this, you will have to import participant data (name, student ID) in a later step.

☒ Close exam upon creation (participants cannot access the exam)

☐ Time Limit:  Minutes

☐ Show student report after submit  
Attention: If this option is activated and the exam does not contain any open questions that have to be scored, the participants will be shown the single student report in the browser after submitting the exam. Do not activate this option if you do not wish to provide the results immediately and automatically.

Online Layout:  

Complete

Online template:  

Design Template

Cancel Back Next

**Figure 198:** Option „Close exam upon creation“

Now you can set up the scheduled tasks without rush. If participants try to log in, they will receive a message on the start page indicating that the exam is currently not open.

**Tip:**

You can also prepare to send email invitations even when an exam is closed. Please consider adding information about the start date of the exam and, if necessary, the end date or time limit in the email text.

### Setup of Time Control

By clicking on the "Scheduled Tasks" menu in the exam details, the time control screen opens with two tabs "Allow exam entry" and "Lock exam entry":



**Scheduled Tasks**

**Online Sample Exam (SampleEx02)**

<input checked="" type="radio"/> 1. Allow exam entry	Deactivated	<b>Activate</b>
<input type="radio"/> 2. Lock exam entry	Deactivated	

Date:

Note: Please note that due to the execution of additional tasks, there could be small delays in processing.

**Save**

**Back**

**Figure 199: Set up of scheduled tasks**

### Task „Allow exam entry“

The action "Allow exam entry" defines at which time the exam should be opened and login with the PSWD should be allowed. To use this task, click the blue button [Activate]:

**Scheduled Tasks**

**Online Sample Exam (SampleEx02)**

<input checked="" type="radio"/> 1. Allow exam entry	Deactivated	<b>Activate</b>
<input type="radio"/> 2. Lock exam entry	Deactivated	

Date:

Note: Please note that due to the execution of additional tasks, there could be small delays in processing.

**Save**

**Back**

**Figure 200: Activate task “Allow exam entry“**

By clicking on the calendar icon you can set the desired date and start time. Save your settings by clicking the button [Save]:

Scheduled Tasks

Online Sample Exam (SampleEx02)

☒ 1. Allow exam entry
 

Deactivate

☐ 2. Lock exam entry
 

Deactivated

Date:

Note: Please note that due to the addition of additional tasks, there could be delays in processing.

Back

?

May, 2022

Today

«

>

Mon

Tue

Wed

Thu

Fri

Sat

Sun

Figure 201: Select date and start time

### Task “Lock exam entry“

The task „Lock exam entry“ defines at what point in time the further acceptance of PSWDs should be blocked. It is then no longer possible to enter the exam.

Participants who are still working on the exam at this time can continue to fill it in. Participants of the exam do not run the risk of not being able to send the completed exam.

If necessary, the exam can be closed manually by clicking on the open lock symbol in the exam details or the exam list.

#### Note:

If the exam has actually been closed, exams can no longer be submitted.

To specify the time at which examinees can no longer log in to the exam, first click on the [Edit] button and open the task via the [Activate] button:

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**Scheduled Tasks**

**Online Sample Exam (SampleEx02)**

☐ 1. Allow exam entry 25.05.2022 at 11:37:00  
☒ 2. Lock exam entry Deactivated

Date:

Note: Please note that due to the execution of additional tasks, there could be small delays in processing.

**Figure 202: Activate task “Lock exam entry”**

In the next step, use the calendar to determine the time at which the acceptance of further participants or TANs should be stopped.

### Use of calendar

The calendar is used for selecting the date and time for a planned operation.

August, 2020							
Today							
wk	Mon	Tue	Wed	Thu	Fri	Sat	Sun
31						1	2
32	3	4	5	6	7	8	9
33	10	11	12	13	14	15	16
34	17	18	19	20	21	22	23
35	24	25	26	27	28	29	30
36	31						

Time:  :

(Shift-)Click or drag to change value

**Figure 203: Calendar**

All changes in the calendar are adopted by the enter templates behind the calendar. The calendar does not need a save button as it can be closed by “x” after selecting the date and time.

With a click on “?” a help function for the calendar is displayed. Using the arrow you can change the year and month. Then select a day and in the line beneath a time. The time is increased by 1 hour/minute with each mouse click. By pressing Shift and making a click the time is decreased by 1 hour/minute. For a faster selection, press and

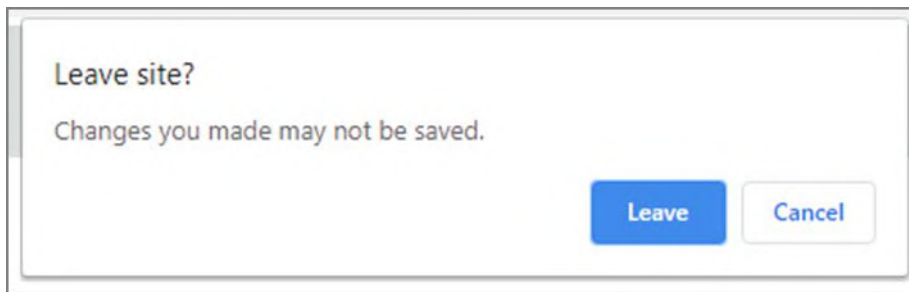
hold the mouse button and move the mouse to the left (decreasing time) or to the right (increasing time).

### **Warning messages for examinees and examiners**

When using the scheduled tasks, it is possible that certain actions may lead to warning messages or hints being displayed to examiners or examinees. The following explains the situations in which messages appear.

#### **Message in case of unsaved changes in the exam**

Participants in an online exam in evaexam must consider that browser functions, such as forward and backward or update, e.g. to reload images, may not be used. It is also not allowed to hit the "F5" key during the exam or to enter a new URL, as the PSWD will then be consumed. To prevent this risk, participants in the exam now receive a corresponding warning message in the browser and can cancel the process:



**Figure 204: Message in case of unsaved changes**

#### **Message when closing an exam**

When the examiner closes the exam, the system first checks if all available PSWDs have been used for the exam. If this is not the case, a message appears indicating that not all of the returns for the exam have been received and that there may still be participants who have not yet completed the exam.

The examiner can interrupt the closing process at this point in order to check whether result data is actually still missing from participants, or whether the difference between PSWDs and participants can be traced back to other causes (e.g. spare PSWDs generated in advance).

#### **Messages when the participant enters the PSWD**

If a participant has entered his or her PSWD, he or she may not be able to participate in the exam. In this case the following messages may appear:

- A scheduled task for opening the exam entrance is defined and the exam has not yet been opened:  
"You are not yet allowed to enter the exam."
- There was a scheduled task to close the exam entrance and entrance is no longer allowed:  
"You are no longer allowed to enter the exam."

- The PSWD for logging into the exam has already been used:  
“The PSWD has already been used. You cannot enter the exam anymore.”
- The exam has been closed and the scheduled tasks have not (yet) been set up.  
Data acceptance is not possible:  
“You are currently not allowed to enter the exam.”

### **8.1.6. Start Page for Participants**

Online exams and online exercises are started and opened from a start page. As soon as participants have logged in, they are first forwarded to the start page. This page is displayed before the exam begins and allows the participants to be informed in advance in a separate area about how the test will be conducted. In addition to the information relevant to the exam, confirmation boxes can be activated. For example, a student authenticity declaration can be integrated using a confirmation box. It is also possible to sign off from an exam. In the settings of the start page, a separate button for this purpose can be activated.

Entering the start page is recorded in the database with a time stamp so that examiners can see via the dashboard at what time participants have entered the start page.

#### **Structure of the Start Page**

In the upper section, participants will find information on the duration of the exam below the exam title. This information appears if a time limit has been set.

Below this, a timer is displayed that shows the remaining time until the start of the exam. The prerequisite for this is that the start of the exam is defined in the scheduled tasks (see chapter 2 8.1.5. „Online Exam with Time Control“).

In the middle area, an info text appears which you can enter freely in the configuration area of the start page. Following the info text, up to three confirmation boxes can be included.

In the lower area, the input field for the participant ID is displayed. If a participant import was previously carried out, only the button [Begin Exam] appears here. You can also activate a button for signing off from the exam. This appears at the bottom left of the start page.

The screenshot shows the 'Start Page of an Online Exam' interface. At the top right is the 'evaexam' logo. Below it, a dark green header bar contains the text 'Demo Exam'. The main content area displays the exam start time '12.08.2021, 11:30:00' and duration '60 Minutes'. A large countdown timer shows '00 : 00 : 27' with labels 'Days', 'Hours', and 'Minutes' below. Below the timer, a 'Welcome to your online exam!' message is followed by instructions for taking the exam. Two checkboxes with asterisks are present for affirmations. A 'Student ID (NNNNNN)' field is shown with a text input box and a 'Begin Exam' button. A 'Sign off from the exam' button is at the bottom right. A footer note states 'entering the examinee ID is necessary'.

evaexam

**Demo Exam**

Exam start: 12.08.2021, 11:30:00

Exam duration: 60 Minutes

The exam starts in:

00 : 00 : 27  
Days Hours Minutes

**Welcome to your online exam!**

Please note the following instructions for taking the exam:

- Ensure a quiet and distraction-free working environment.
- Use a laptop or desktop PC to take the exam.
- Make sure you have a stable internet connection.
- Use the Chrome, Firefox or Edge browser and close all other windows and applications unless required for the exam.
- When the exam is unlocked and you are ready, click the [Start Exam] button.

☐ \* I hereby swear and affirm that I personally completed this exam without any outside assistance.

☐ \* I further affirm that I attended the course for at least an amount of time equal to the credit hours prior to taking the exam.

Student ID (NNNNNN)

Begin Exam

Sign off from the exam

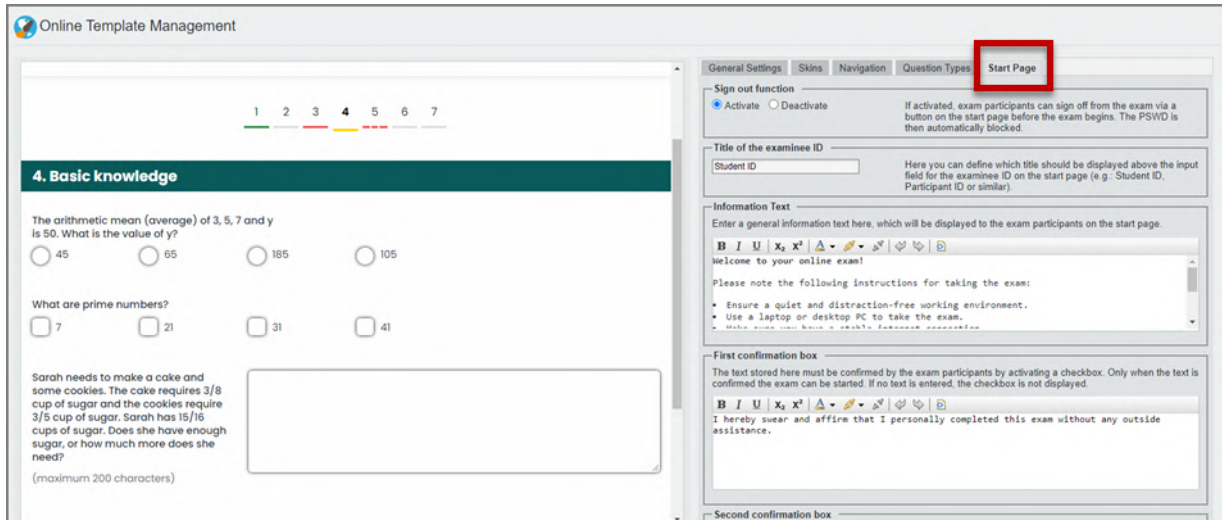
entering the examinee ID is necessary

**Figure 205: Start Page of an Online Exam**

### Setting up the Start Page

The start page is part of an online template and for this reason is edited in the online template management. To do this, open the menu "Settings/Online Templates". Here you can create a new online template or edit an existing template.

In the editing view of the template, click on the submenu "Start Page":



**Figure 206: Configuring the Start Page**

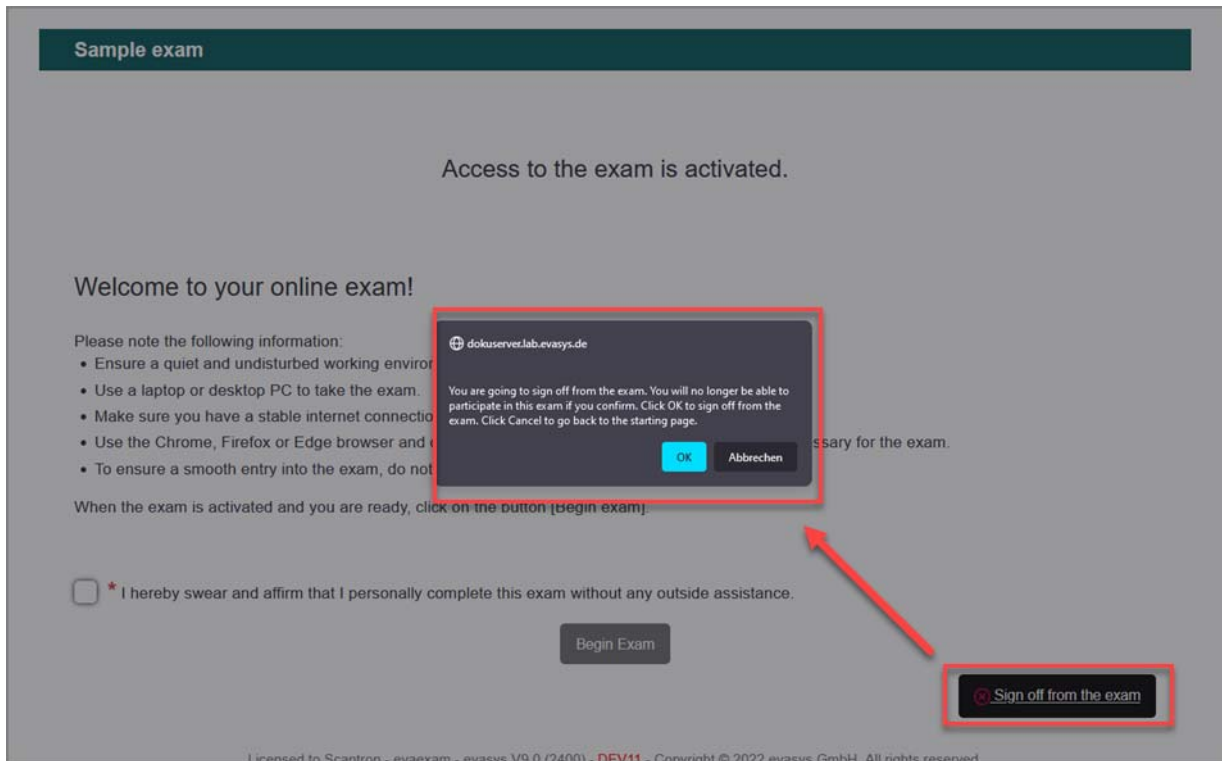
This menu includes the following setting options:

- Sign out function

If activated, exam participants can sign off from the exam via a button on the start page before the exam begins. The PSWD is then automatically blocked.

The prerequisite is that participant data has been imported in advance or that the participant has entered the participant ID on the start page, as only then is it possible to assign the sign-off to the person. After clicking on the button [Log off from exam], a confirmation prompt appears which must be confirmed. After confirmation, the examinee can no longer access the exam.





**Figure 207: Sign-off Function**

In the exam dashboard, the participant is also marked as "signed off". For verification purposes, the deregistration note is also included in the log export of the exam dashboard with the corresponding time stamp.

Dashboard for exam "Sample exam"

Temporarily save online exams automatically: 60 Seconds

Refresh in 52s

Participant ID	Participant	PSWD	Exam started	Last saved	Exam finished	Lock/Unlock PSWD
112233	Miller, Mike	Z9MMQ	--	--	--	
010203	Johnson, John	UDDKW	25.05.2022, 13:25:15	25.05.2022, 13:25:15	signed off	

20 < 1 >

Please note: If you have set a time limit for the exam and have not imported any participant data in advance, it is possible that the time span between the start of the exam and the end of the exam may slightly exceed the defined time limit. This is because the exam is started by entering the PSWD, but the time limit only begins when the student ID is subsequently entered and confirmed. The short time difference between entering the PSWD and confirming the ID must therefore be taken into account.

Back Download Log

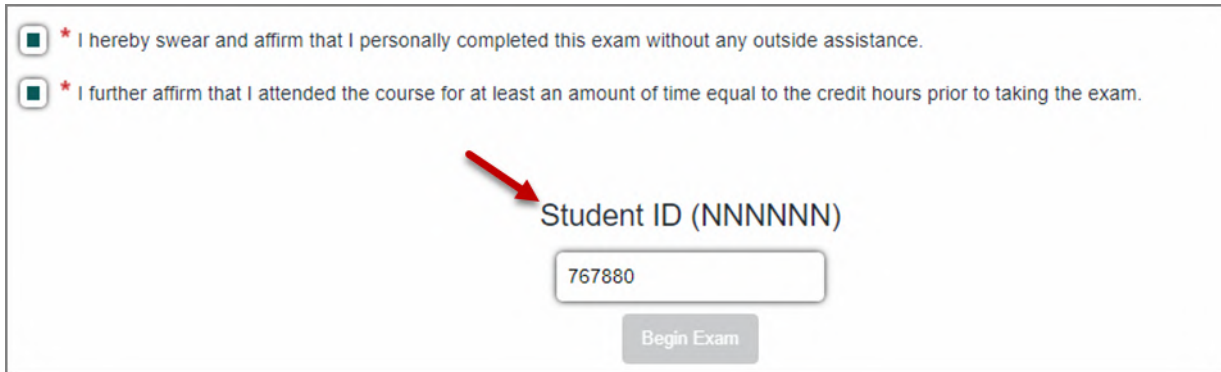
**Figure 208: Participant signed off displayed in the Dashboard**

By default, the sign off function is disabled in the online template. It must therefore be made explicitly available.

- Title of the examinee ID

Here you can define which title should be displayed above the input field for the examinee ID on the start page (e.g.: Student ID, Participant ID or similar).





☐ \* I hereby swear and affirm that I personally completed this exam without any outside assistance.

☐ \* I further affirm that I attended the course for at least an amount of time equal to the credit hours prior to taking the exam.

Student ID (NNNNNN)

767880

Begin Exam

**Figure 209: Title of the Examinee ID**

- Information Text

Enter a general information text here, which will be displayed to the exam participants on the start page.

**Tip:**

You can use HTML tags to format the information text. For example, if you want to present notes in list form, you must use the following tags:

```
<ul>
```

```
<li>Note text 1</li>
```

```
<li>Note text 2</li>
```

```
<li>Note text 3</li>
```

```
</ul>
```

Display on the start page:

- Notice text 1
- Notice text 2
- Notice text 3

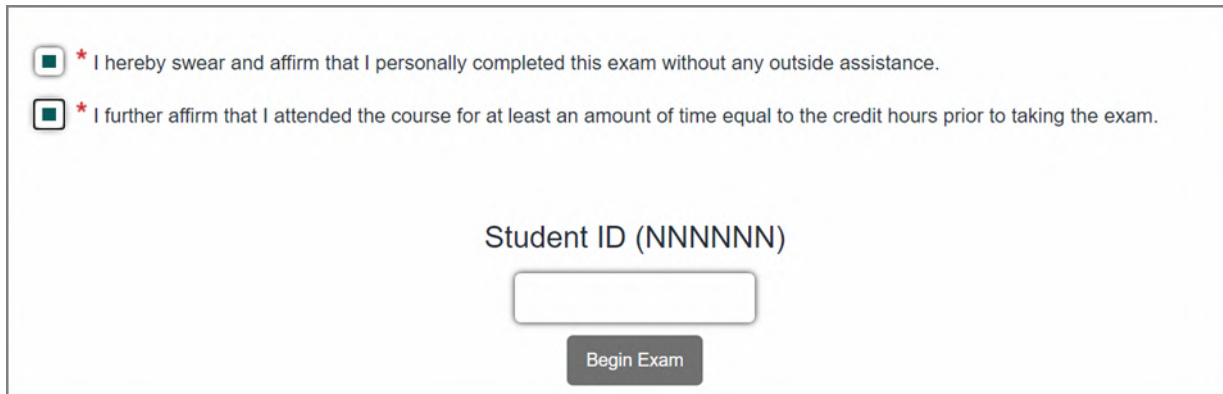
Please note that the information text should be semantically correct so that the start page is completely accessible and can also be used correctly by participants with screen readers. Headings may only be marked with an H element from level H4, as the previous levels are already occupied by fixed elements on the start page. For more information on accessibility see section "Create a barrier-free online exam", page 208.

- First/Second/Third confirmation box

Up to three texts can be stored for confirmation boxes, which are displayed on the start page of the exam. They can be used for any confirmations relevant to the exam, e.g. for declarations of independence by the participants, confirmation of data protection regulations and the like. Only when all the confirmation boxes have

been activated by the participants will the [Begin exam] button become active and the exam can be entered.

The confirmation boxes are only displayed if texts have been stored in the text input fields. If no text is stored, no checkbox is displayed on the start page.



The screenshot shows a light gray rectangular box representing the exam start page. At the top left, there are two lines of text, each preceded by a small square checkbox with a red asterisk. The first line reads: "I hereby swear and affirm that I personally completed this exam without any outside assistance." The second line reads: "I further affirm that I attended the course for at least an amount of time equal to the credit hours prior to taking the exam." Below these, centered, is the text "Student ID (NNNNNN)" above a white rectangular input field. At the bottom center is a dark gray button with the text "Begin Exam" in white.

**Figure 210: Confirmation boxes on the start page**

Further information on creating and editing online templates can be found in chapter 8.5. "Online Templates".

### Using the Start Page in Online exams

When creating your online exam or online exercise, make sure that you select the correct online template in the exam wizard for which you have configured the start page according to your wishes:

**Create Exam - Exam Options**

Please select the type of participant capturing:

☒ Entry of student ID by participants  
The exam sheet does not contain participant information. The exam participants have to identify by manually entering their student ID.

☐ Participant import  
The participant data is already connected to the individualized exam sheets. To do this, you will have to import participant data (name, student ID) in a later step.

☒ Close exam upon creation (participants cannot access the exam)

☒ Time Limit:  Minutes

☐ Show student report after submit

Attention: If this option is activated and the exam does not contain any open questions that have to be scored, the participants will be shown the single student report in the browser after

Classic Template

SEB Online Template

**Design Template**

ACME Co.

Demo 9.0 Template

New online template

Design Template

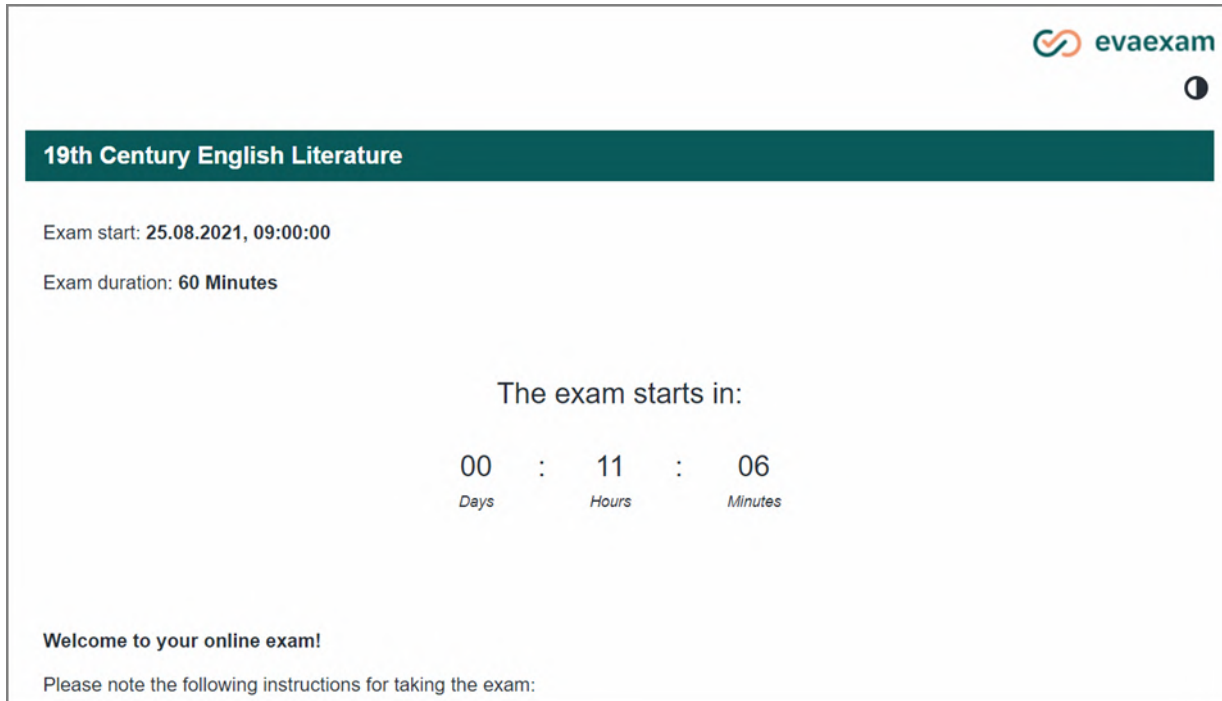
Cancel Back Next

**Figure 211: Select desired Online Template in the Exam Wizard**

The start page is automatically displayed at the start of online exams and practices.

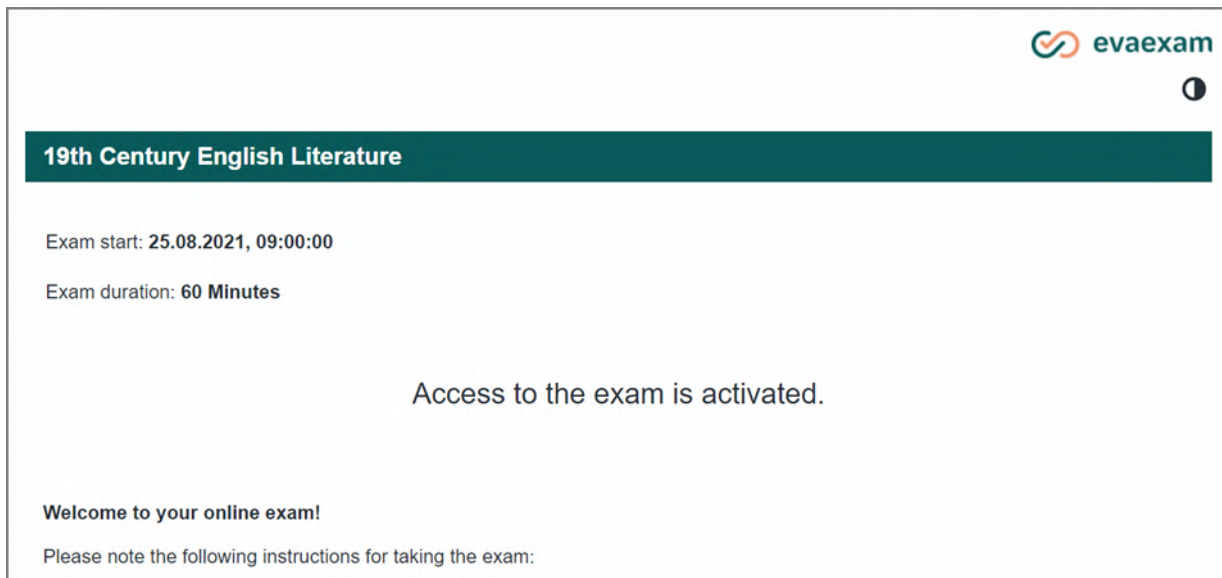
With regard to the process, it is advisable to initially create the exam as a closed one and to define a start date for the exam entry via the scheduled tasks menu. In the next step - when the exam is still closed - the PSWDs can be sent to the participants by email or other means.

If the participants access the exam before it is started, the start page uses a timer to show the remaining time until the exam. The page updates automatically, no reloading by the participants is necessary. In the run-up to the exam, the participants can now calmly read the instructions, activate the confirmation boxes and enter their exam participant ID (if necessary).



**Figure 212: Start page with timer and remaining time**

After the timer has expired, it is automatically replaced by a message that the exam is now open.



**Figure 213: Start page with activated access**

In the run-up to the exam, participants can easily access the start page several times using the link provided or the PSWD. The PSWD is only used when the exam is started using the [Begin exam] button. Access to the start page is noted in the exam dashboard with a time stamp.

If no start time is defined in the Scheduled Tasks, the timer on the start page is not available. In this case, only the corresponding status of the exam is shown ("Access to

the exam is activated" if the exam is open, or "Access to the exam is currently not activated" if the exam is closed). If the exam is initially closed and then opened manually, participants have to refresh the start page in the browser in order to access the exam. As the examiner, you must inform your participants accordingly or include a corresponding note in the information text on the start page.

### **8.1.7. Exam Dashboard**

The exam dashboard allows you as an examiner to receive an overview of the current status of the online exam and to follow and monitor the exam live. With the help of this overview, you can see whether participants have already started and completed their exam or have left the exam without submitting it. In this case, the exam dashboard allows you to reopen a PSWD so that the participant can re-enter the exam.

**Note:**

The exam dashboard is only available for online exams, but not for the "Online Practice" and "Online Quiz" formats.

### **Access to the Dashboard**

You can reach the dashboard in the details of an online exam in the "Actions" section:

### Exam Details

Exam	Sample exam
Folder	Computer Sciences
Type	Online Exam
No. of PSWDs	1 of 2 PSWDs are still available
Participants	2 - Participant import
Exam sheet	SampleEx [+2]
Grading Scale	no scale assigned
Status	In progress
Exam Created on	25.05.2022 at 13:20:19

### Actions

Exam Dashboard

Show PSWDs in browser

Receive PSWDs by email

Send PSWDs by email to respondents

Download PSWDs in CSV File

☐ Time limit for exam:  Minutes 

Apply

Preview Online Exam

**Figure 214: Menu “Exam Dashboard” in the exam details**

The dashboard is available both directly after the exam has been created and during the ongoing exam and after it has been completed. It can be viewed at any time via the menu item. The dashboard displays the data of the exam and lists the exam participants or PSWDs in a clearly arranged table. Each row corresponds to one exam participant.

If participant data has been imported beforehand, you will receive a list of the PSWDs assigned for this exam as well as the first and last name and participant ID.

**Dashboard for exam "Sample exam"**

Temporarily save online exams automatically: 60 Seconds

Refresh in 52s

Participant ID	Participant	PSWD	Exam started	Last saved	Exam finished	Lock/Unlock PSWD
717866	Hellman, Bill	Q9WR3	--	--	--	
473557	Hernandez, Carlos	4YXFY	--	--	--	
280579	Kruger, Kerstin	VSGJW	--	--	--	
112233	Miller, Mike	Z9MMQ	--	--	--	
010203	Johnson, John	UDDKW	25.05.2022, 13:25:15	25.05.2022, 13:25:15	signed off	

20 < 1 >

Please note: If you have set a time limit for the exam and have not imported any participant data in advance, it is possible that the time span between the start of the exam and the end of the exam may slightly exceed the defined time limit. This is because the exam is started by entering the PSWD, but the time limit only begins when the student ID is subsequently entered and confirmed. The short time difference between entering the PSWD and confirming the ID must therefore be taken into account.

Back Download Log

**Figure 215: Initial status of the exam dashboard (with participant data)**

If you have not uploaded any participant data, only the assigned PSWDs will appear initially:

**Dashboard for exam "Demo Training"**

Allow exam entry: 26.11.2020 at 09:00:00

Temporarily save online exams automatically: 60 Seconds

Refresh in 56s

Participant ID	PSWD	Exam started	Last saved	Exam finished	Lock/Unlock PSWD
	AVM4R	--	--	--	
	HNK1N	--	--	--	
	HREG4	--	--	--	
	U7JGD	--	--	--	
	VEVRT	--	--	--	

20 < 1 >

Please note: If you have set a time limit for the exam and have not imported any participant data in advance, it is possible that the time span between the start of the exam and the end of the exam may slightly exceed the defined time limit. This is because the exam is started by entering the PSWD, but the time limit only begins when the student ID is subsequently entered and confirmed. The short time difference between entering the PSWD and confirming the ID must therefore be taken into account.

Back Download Log

**Figure 216: Initial status of the exam dashboard (without participant data)**

Pagination is possible, allowing you to set the number (20, 50, 100 or all) of PSWDs displayed.

The first three columns of the dashboard are sortable. For example, you can display the table sorted by all those who are still in the exam. This means, participants with this status will be listed first. If scheduled tasks have been set up, you will find information about time control in the dashboard header. If a time limit has been activated, this information will also be shown in the header.



A Refresh button appears on the right side, indicating in seconds when a new up-date is performed (every 60 seconds). By clicking on the button, an immediate update can be triggered.

### Overview of the exam progress

The status of the exam participants is indicated by a colored symbol in the first column. The following status are possible:

- Gray: Participant has not yet started the exam
- Green: Participant has started the exam
- Yellow: Participant's status is unclear
- Red: Participant is no longer in the exam, the exam has not been completed regularly
- Green with check mark: Participant has successfully sent the exam
- Gray with a white cross: Participant has signed-off from the exam

As soon as the first participants have registered, the status turns green. You can also see at what time the participant has entered the exam and when the last saving took place.

If participants have completed their exam and clicked on [Submit], a white check mark appears in the green status icon:

### Dashboard for exam "Demo Training"

Allow exam entry: 26.11.2020 at 09:00:00

Temporarily save online exams automatically: 60 Seconds

Refresh in 43s

Participant ID	PSWD	Exam started	Last saved	Exam finished	Lock/Unlock PSWD
342312	HNK1N	25.05.2022, 13:35:53	25.05.2022, 13:35:55	--	
565565	AVM4R	25.05.2022, 13:35:45	25.05.2022, 13:35:48	--	
b.roever@evasys.de	HREG4	--	--	--	
	U7JGD	--	--	--	
	VEVRT	--	--	--	

20

1

Please note: If you have set a time limit for the exam and have not imported any participant data in advance, it is possible that the time span between the start of the exam and the end of the exam may slightly exceed the defined time limit. This is because the exam is started by entering the PSWD, but the time limit only begins when the student ID is subsequently entered and confirmed. The short time difference between entering the PSWD and confirming the ID must therefore be taken into account.

Back

Download Log

**Figure 217: Exam dashboard with display of ongoing exam**



If evaexam does not receive any new data for an exam via the temporary storage, the status turns yellow. The status consequently indicates that no new data has been received for several minutes.






### Note:

By default, the time interval for caching is 60 seconds. This interval can be adjusted by system administrators. In addition, a buffer of five minutes has been defined so that the status does not jump directly to "yellow" in the event of short-term inactivity.

**Dashboard for exam "Demo Training"**

Allow exam entry: 26.11.2020 at 09:00:00  
Temporarily save online exams automatically: 60 Seconds

Refresh in 57s

Participant ID	PSWD	Exam started	Last saved	Exam finished	Lock/Unlock PSWD
342312	HNK1N	25.05.2022, 13:35:53	25.05.2022, 13:35:55	--	
565565	AVM4R	25.05.2022, 13:35:45	25.05.2022, 13:35:48	--	
002233	HREG4	25.05.2022, 13:37:31	25.05.2022, 13:37:34	--	
	U7JGD	--	--	--	
	VEVRT	--	--	--	

20 < 1 >

Please note: If you have set a time limit for the exam and have not imported any participant data in advance, it is possible that the time span between the start of the exam and the end of the exam may slightly exceed the defined time limit. This is because the exam is started by entering the PSWD, but the time limit only begins when the student ID is subsequently entered and confirmed. The short time difference between entering the PSWD and confirming the ID must therefore be taken into account.

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**Figure 218: Yellow status icon**

The participant can now be contacted (outside of evaexam) to clarify whether there is a problem. If he/she has left the exam due to technical problems or other reasons, he/she can be granted re-entry if necessary (see section "Lock/unlock PSWD", page 189).

If the status of a participant is red, then this indicates that the exam could not be completed in a regular manner. The status red only appears when the exam is closed, i.e. no further data acceptance is possible. If temporarily stored data is available for a participant, it can be transferred to the exam evaluation if required (see section "Transfer Data from Storage", page 190).

### Lock/unlock PSWD

The "Lock/Unlock PSWD" function allows you to change the status of a PSWD. This may be necessary or useful for various reasons:

- A PSWD can be blocked before the start of the exam if a participant has deregistered from the exam in advance. In this case, blocking prevents the PSWD from being passed on to another person who would then be able to access the exam without authorization.

- During the exam, participants may have accidentally left the exam, e.g. because the browser or tab was closed without actually completing the exam. If the examiner has activated a time limit, it is not possible to re-enter the exam because the PSWD is automatically blocked. If necessary, this lock can be removed again using the "Unlock PSWD" function.

If the status of a participant changes to "yellow" during the exam, it is very likely that the exam was (accidentally) left. As the examiner, you can contact the participant to clarify the situation. To make the PSWD available to the participants again, all you have to do is click on the lock icon in the "Lock/Unlock PSWD" column. The icon turns green and re-entry into the exam is possible.

	Participant ID	PSWD	Exam started	Last saved	Exam finished	Lock/Unlock PSWD
	342312	HNK1N	25.05.2022, 13:35:53	25.05.2022, 13:35:55	--	
	565565	AVM4R	25.05.2022, 13:35:45	25.05.2022, 13:35:48	--	
	002233	HREG4	25.05.2022, 13:37:31	25.05.2022, 13:37:34	--	

**Figure 219: Unlock PSWD**

If the participant now logs in again with the PSWD, the exam is reloaded and displays the status of the last intermediate storage. The remaining time is displayed in the header of the exam.

**Note:**

In the case of time-limited exams, the time of the exam participant continues to run. After logging in again with the PSWD, only the remaining time (measured from the original start of the exam by the participant) is available. The time loss caused by releasing and logging in again must therefore be accepted. If the time has already expired, re-entry is no longer possible.

Please also note: Unlocking the PSWD removes the lock on exam entry (if defined in the Scheduled Operations) for this participant. Subsequent entry is therefore possible.

## Transfer Data from Storage

When the exam is finished, it can be closed in the exam details by clicking the "Finish Data Collection, Close Exam" option.

**Figure 220: Close exam**

After closing the exam, the exam dashboard can now be opened again. If it was not possible for one of the participants to complete the exam, its status is now displayed in red. The "Data not submitted" message appears in the "Exam finished" column if no cached results are available. If cached data is available, the message "Data not sent" appears.

Participant ID	PSWD	Exam started	Last saved	Exam finished
002233	HREG4	25.05.2022, 13:37:31	25.05.2022, 13:37:34	No Data available
342312	HNK1N	25.05.2022, 13:35:53	25.05.2022, 13:35:55	No Data available

**Figure 221: Transferring data when exam is closed**

If the participant now logs in again with the PSWD, the exam is loaded and displays the status of the last intermediate storage. The remaining time is displayed in the header of the exam.

If data from the intermediate storage is available, a column "Transfer data from storage" is displayed on the right. To transfer the exam data, click on the green arrow icon. The data status from the last intermediate storage will be taken over and evaluated as a regular return. All evaexam reports (overall report and individual report) and exports (score export, raw data export) are supplemented with the data of the participant(s).

For verification purposes, the record is color-coded in the exam dashboard. In this way, even if the dashboard is viewed at a later point of time, it is possible to see whether a record was submitted regularly or restored from temporary storage.

Participant ID	PSWD	Exam started	Last saved	Exam finished	data from storage
225432	SX8PV	28.06.2022, 10:36:15	28.06.2022, 10:37:19	28.06.2022, 10:37:19	
050505	8236S	28.06.2022, 10:40:14	28.06.2022, 10:43:01	28.06.2022, 10:43:01	
	MXZVX	--	--	--	
	PPVMQ	--	--	--	
	VFKE8	--	--	--	
	Y7MRY	--	--	--	
567844	11X6Y	12.08.2021, 11:17:24	12.08.2021, 11:17:24	signed off	

Figure 222: Restored data set

### Note:

The process cannot be undone. When you transfer data from the temporary storage, it is irrevocably transferred to the data base.

## Download Board

In the lower right area of the dashboard you find the [Download Board] button. By clicking the button you will be provided with the log for review in CSV format.

Dashboard for exam "Demo Training"

Allow exam entry: 26.11.2020 at 09:00:00  
Temporarily save online exams automatically: 60 Seconds

Refresh in 42s

Participant ID	PSWD	Exam started	Last saved	Exam finished
002233	HREG4	25.05.2022, 13:37:31	25.05.2022, 13:37:34	No Data available
342312	HNK1N	25.05.2022, 13:35:53	25.05.2022, 13:35:55	No Data available
565565	AVM4R	25.05.2022, 13:35:45	25.05.2022, 13:35:48	No Data available
	U7JGD	--	--	--
	VEVRT	--	--	--

20 < 1 >

Please note: If you have set a time limit for the exam and have not imported any participant data in advance, it is possible that the time span between the start of the exam and the end of the exam may slightly exceed the defined time limit. This is because the exam is started by entering the PSWD, but the time limit only begins when the student ID is subsequently entered and confirmed. The short time difference between entering the PSWD and confirming the ID must therefore be taken into account.

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Download Log

Figure 223: Download log

In case of a participant import, the participant ID, the PSWD, the start time of the exam, the last saving and the end of the exam as well as the first and last name are listed:

A1		Participant ID					
	A	B	C	D	E	F	G
1	Participant ID	Participant	PSWD	Exam started	Last saved	Exam finished	
2	01-467-89	Hall, Robert	KAW16				
3	02-805-79	Collins, Leon	4CC4M	19.05.2021, 15:53:17	19.05.2021, 15:53:29	19.05.2021, 15:53:29	
4	02-817-50	Kruger, Kyle	LAE4V				
5	03-445-67	Roberts, Tanya	ZCNGJ	19.05.2021, 15:55:11	19.05.2021, 15:58:04	19.05.2021, 15:58:04	
6	03-467-90	Williams, James	VR8NQ	19.05.2021, 15:53:59	19.05.2021, 15:58:22	19.05.2021, 15:58:22	
7	04-140-87	Willis, Jennifer	Z7D97	19.05.2021, 15:53:52	19.05.2021, 15:54:39	19.05.2021, 15:54:39	Results taken from intermediate storage
8	04-877-86	Smith, Andrea	1D2SA	19.05.2021, 15:52:47	19.05.2021, 15:53:01	Data not submitted	
9	06-275-22	Carpenter, Thomas	442MH				
10	07-178-66	McAndrew, Lisa	2337G	19.05.2021, 15:52:55	19.05.2021, 15:53:36	19.05.2021, 15:53:36	
11	09-966-44	Wilson, Julia	U8AXW	19.05.2021, 15:54:24	19.05.2021, 16:05:44	19.05.2021, 16:05:44	
12							
13							

**Figure 224: Log file of the exam**

If data has been transferred from the intermediate storage, this is also noted in the log for verification purposes.

**Note:**

If you have set a time limit for the exam and have not imported any participant data in advance, it is possible that the time span shown on the board between the start and end of the exam may slightly exceed the defined time limit. This is due to the fact that the exam is started by entering the PSWD, but the time limit does not start until the exam participant ID is subsequently entered and confirmed. The short time difference between entering the PSWD and confirming the ID must therefore be taken into account.

**Tipp:**

If you have performed an exam without importing participants, you can subsequently import participant data via the "Administrate participants" menu to obtain consistent log files. You will find the menu in the details of the exam in the "Actions" area.

**Open Log**

The logging of online exams enables examiners to better track individual processes around the online exam. This allows them to see, for example, at what time a participant accessed the start page or at what time the exam was started.

As soon as the examiner has closed the exam by clicking on the lock icon, the [Download Board] button in the dashboard is activated and can be accessed:



### Dashboard for exam "Sample exam"

Temporarily save online exams automatically: 60 Seconds

Refresh in 31s

Participant ID	Participant	PSWD	Exam started	Last saved	Exam finished
112233	Miller, Mike	Z9MMQ	08.06.2022, 08:55:24	08.06.2022, 08:57:59	08.06.2022, 08:57:59
717866	Hellman, Bill	Q9WR3	--	--	--
473557	Hernandez, Carlos	4YXFY	--	--	--
280579	Kruger, Kerstin	VSGJW	--	--	--
010203	Johnson, John	UDDKW	25.05.2022, 13:25:15	25.05.2022, 13:25:15	signed off

Please note: If you have set a time limit for the exam and have not imported any participant data in advance, it is possible that the time span between the start of the exam and the end of the exam may slightly exceed the defined time limit. This is because the exam is started by entering the PSWD, but the time limit only begins when the student ID is subsequently entered and confirmed. The short time difference between entering the PSWD and confirming the ID must therefore be taken into account.

Back Open Log Download Log

**Abbildung 225: Open Log**

Clicking on the button opens the log. The following information can be viewed:

- Participant ID  
Individual ID or registration number of the participant
- PSWD  
Assigned PSWD
- Action  
The "Action" column contains the messages "Open start page", "Start exam" and "Submit exam". The latter is followed by a note in brackets indicating whether the data was sent manually, i.e. by the participant, or whether the data was transferred from the last storage. In this case, the note "automatically" appears in brackets.  
If no activity was detected, the message "No Action" appears.  
If a participant's PSWD was unlocked or locked during the course of the exam, this is also registered in the "Action" column.
- Date / Time  
Date / Time of the respective action
- Participant Email  
Appears only in case of exams with participant import

Please note: If you have set a time limit for the exam and have not imported any participant data in advance, it is possible that the time span between the start of the exam and the end of the exam may slightly exceed the defined time limit. This is because the exam is started by entering the PSWD, but the time limit only begins when the student ID is subsequently entered and confirmed. The short time difference between entering the PSWD and confirming the ID must therefore be taken into account.

Log for exam Sample exam				
Participant ID	PSWD	Action	Date / Time	Participant Email
010203	UDDKW	Open start page	25.05.2022, 13:22:36	br@evasys.de
		Sign off from exam	25.05.2022, 13:25:15	
112233	Z9MMQ	Open start page	08.06.2022, 08:54:23	mm@evasys.de
		Open start page	08.06.2022, 08:55:19	
		Start exam	08.06.2022, 08:55:24	
		Submit exam (manually)	08.06.2022, 08:57:59	
280579	VSGJW	No Action		k.krueger@example.com
473557	4YXFY	No Action		c.hernandez@example.com
717866	Q9WR3	No Action		b.hellman@example.com

20 < 1 >

Please note the following information for exams without participant import: If the PSWDs are sent to the participants by email, the email addresses used will not be shown in the "Participant Email" column. The email addresses are only displayed for exams with participant import. If a participant who has received the PSWD by email opens the start page, his or her email address will be displayed in the "Participant ID" column for verification purposes.

Back

Abbildung 226: Display of the Exam Log

**Note:**

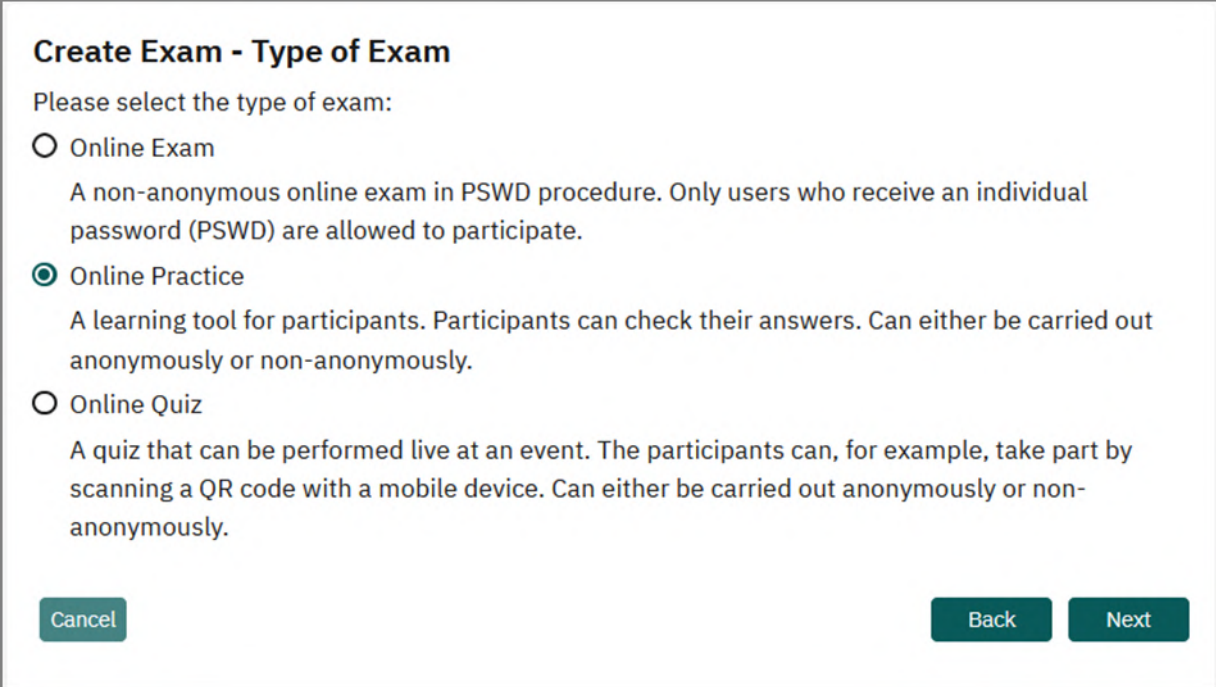
The [Open Log] button is no longer displayed in the dashboard if the date of the last data collection was more than 30 days ago. After that time, it is no longer possible to access the log.



## 8.2. Online Practices

An online practice differs from an online exam, as in an online practice the participants can view the correct answer once they have answered the question.

They can also view an explanatory text for the question, or additional references and resources.



**Create Exam - Type of Exam**

Please select the type of exam:

☐ Online Exam  
A non-anonymous online exam in PSWD procedure. Only users who receive an individual password (PSWD) are allowed to participate.

☒ Online Practice  
A learning tool for participants. Participants can check their answers. Can either be carried out anonymously or non-anonymously.

☐ Online Quiz  
A quiz that can be performed live at an event. The participants can, for example, take part by scanning a QR code with a mobile device. Can either be carried out anonymously or non-anonymously.

**Figure 227: Creating Online Practices**

In contrast to the online exam the online practice can also be done anonymously. In this case participants do not have to identify with their examinee-ID. The results are not assigned to the single participants. With the help of an additional selection box you can specify how you want to proceed.

### Create Exam - Exam Options

Please select the type of participant capturing:

☒ Entry of student ID by participants

The exam sheet does not contain participant information. The exam participants have to identify by manually entering their student ID.

☐ Participant import

The participant data is already connected to the individualized exam sheets. To do this, you will have to import participant data (name, student ID) in a later step.

☐ Time Limit:  Minutes

☐ Show student report after submit

Attention: If this option is activated and the exam does not contain any open questions that have to be scored, the participants will be shown the single student report in the browser after submitting the exam. Do not activate this option if you do not wish to provide the results immediately and automatically.

☒ Student ID is required.

Online Layout:

Complete

Online template:

Design Template

Cancel Back Next

**Figure 228: Anonymous or non-anonymous online practice**

Creating an online practice is more or less the same as creating an online exam. If the participant completes an online practice, then, once they have answered a question, they can click on [Check!] to see whether they have selected the correct answer(s). In addition, they will be able to view any explanatory texts or references included with the question.

1 Common questions

1.1 Which elements can you delete in the System Cleaning?

☒ PSWD's ☐ Received emails

☐ Sent emails ☒ Entries in the log book

<< Previous ☐ Mark page **Check!**

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WCAG 2.1 AA

**Figure 229: Online Practices: Check**

Once the participant has clicked [Check], the button is displayed as [Continue] so that they can move on to the next question or question group.

1 Common questions

1.1 Which elements can you delete in the System Cleaning?

☒ PSWD's ☐ Received emails

☐ Sent emails ☒ Entries in the log book

**Explanation**

PSWD's and entries in the logbook are correct answers. There is no inbox for received emails and only the meta data of sent emails is logged

**Reference**

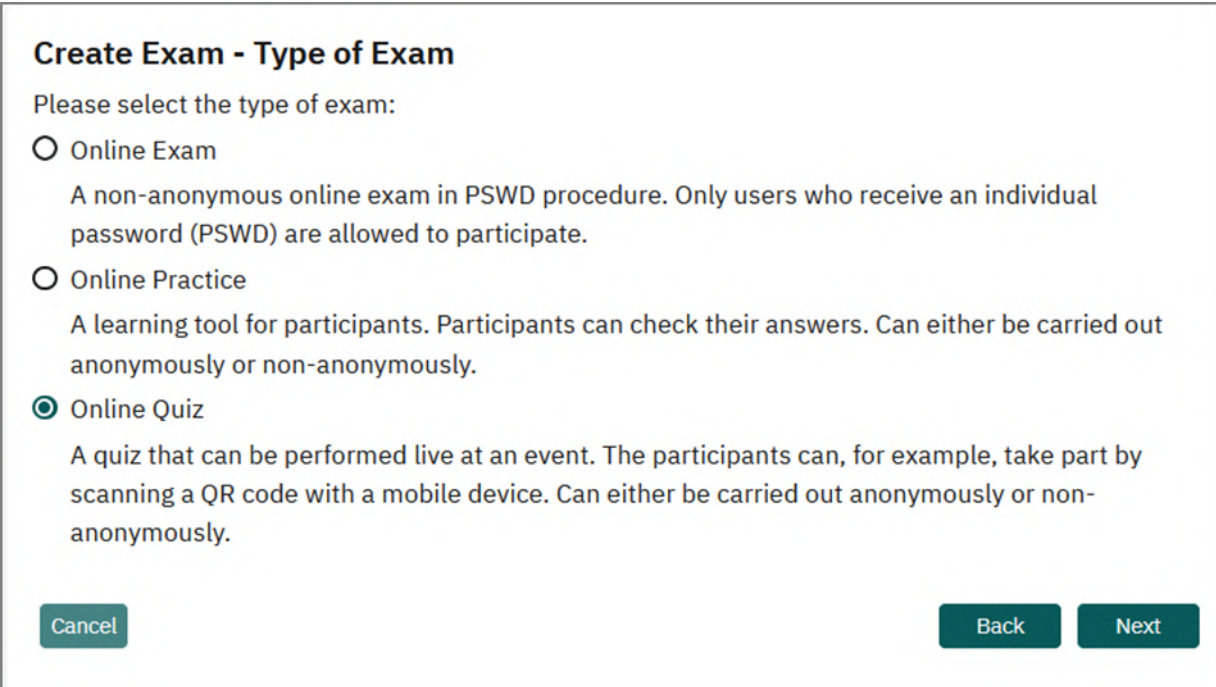
[https://dokuserver.lab.evasys.de/evaexam\\_en\\_90/manuals](https://dokuserver.lab.evasys.de/evaexam_en_90/manuals)

**Figure 230: View of Explanations and References**

## 8.3. Online Quiz

The online quiz can be performed as a live quiz during an event or course. It works similar to the online exam, i.e. the participant will not see the solution after having answered a questions. In contrast to the online exam and online practice the participants do not access the exam with the help of individual PSWDs, but with a general master password. This master password can be provided by means of a direct link to the exam or a QR code.

Thus, with the help of the online quiz you can address a large group of participants. However, you must keep in mind that theoretically a participant could take part multiple times.



**Create Exam - Type of Exam**

Please select the type of exam:

- ☐ Online Exam  
A non-anonymous online exam in PSWD procedure. Only users who receive an individual password (PSWD) are allowed to participate.
- ☐ Online Practice  
A learning tool for participants. Participants can check their answers. Can either be carried out anonymously or non-anonymously.
- ☒ Online Quiz  
A quiz that can be performed live at an event. The participants can, for example, take part by scanning a QR code with a mobile device. Can either be carried out anonymously or non-anonymously.

Cancel Back Next

**Figure 231: Generate Online Quiz**

When having selected the option “Online Quiz”, in the next step you can define a password for the quiz. The password must have a length of 5-25 characters and may not contain spaces or special characters. It must be unique within the evaexam system. If a password is already in use, a warning message is shown and you have to adapt the password.

As the online practice, also the online quiz can be done anonymously or non-anonymously. All additional functions (time limitation, student report) are available. It is not possible to use the QR code together with the time limit function due to technical reasons.

**Create Exam - Exam Options**

Password for Online Quiz:

Hamburg

☐ Time Limit: 0 Minutes

☐ Show student report after submit

Attention: If this option is activated and the exam does not contain any open questions that have to be scored, the participants will be shown the single student report in the browser after submitting the exam. Do not activate this option if you do not wish to provide the results immediately and automatically.

☐ Student ID is required.

Online Layout:

Complete

Online template:

Design Template

Cancel Back Next

**Figure 232: Exam Options for the Online Quiz**

All further steps in the exam wizard correspond the online exam or online practice (see above).

After confirming the exam data in the last step of the wizard the quiz is created and is displayed in the exam list. Click on the name of the exam to get into the exam details. Here you can take further actions.

**Exams in Folder "Practices"**

Type	Name	Details	Status	Template	Created	Processed	Sheets	# Forms	Original Scans	Report	Export	Actions	Request
	Sample Practice		In progress	SampleEx	25.05.2022	--	20	0					
	Sample Quiz		In progress	Demo_V1	25.05.2022	--	0	0					






Create new exam

**Figure 233: Online Quiz in the Exam List**

In the exam details there are different functions available which you can use to make the access data available to your participants:

Exam Details	
Exam	Sample Quiz
Folder	Practices
Type	Online Quiz (Hamburg)
Participants	Entry of student ID by participants
Exam sheet	Demo_V1 <a href="https://dokuserver.lab.evasys.de/evaexam_en_90/online.php?p=Hamburg">https://dokuserver.lab.evasys.de/evaexam_en_90/online.php?p=Hamburg</a>
Grading Scale	no scale assigned
Status	In progress
Exam Created on	25.05.2022 at 15:08:22

Actions	
	Download QR code for this online quiz
	Change password
	Send exam access data to participants via email
	<input type="checkbox"/> Time limit for exam: <input type="text" value="0"/> Minutes <button>Apply</button>
	Preview Online Exam

**Figure 234: Distribute access data for the online quiz**

- In the section “Exam sheet” the direct link to the online quiz can be opened and copied. The password is integrated in the link so that participants just have to click the link without having to enter a password.
- In the section “Actions” you can download a QR code for the online quiz as a png file. This QR code also leads directly to the online quiz. The QR code can, for example, be projected in the conference room or be printed on a handout. With the help of a smartphone or other mobile devices the participants can scan the code and take part in the quiz. It is not possible to use the QR code together with the time limit function due to technical reasons.
- In the section “Actions” you can send the link to the online quiz by email to the participants. The mailing procedure takes place in the same way as for online exams (see the information above in chapter 8.1. “Online Exam”). In contrast to the PSWD procedure, a different placeholder is used in the e-mail to the participants for access to the quiz: the placeholder [ONLINE\_QUIZ\_LINK]. This placeholder is substituted by a link that leads the participants directly into the quiz without a start page being displayed first.

## 8.4. Additional Notes on Online Exams

If you want to do online exams, practices or quizzes with evaexam, please note the following important information:

- If you want to do a ‘real’ online exam (not only a test to check the learning level), please check in advance if your examination regulations allow this kind of exam. Please note that in this case there are often very strict requirements regarding the exam procedure (e.g. participant identification by presenting the student ID etc.).
- Before carrying out the online exam consult the evaexam administrator and inform him about the exact time of the exam and the number of participants. As a web



based software evaexam depends on network availability. If several online exams take place at the same time this can lead to high network and system load on the evaexam server. This can have a negative effect on the test procedure. Therefore, never do such an exam without consulting your IT department and your evaexam administrator.

- Via the CSV export of scores evaexam offers the possibility to uncover potential misuse of the participants of time limited online exams, which have not been conducted in a controlled environment. For each participant the CSV file contains information on the duration of filling out the online form. If one of the processing times significantly exceeds the allowed time this can be a sign for manipulation by the participant. See also chapter 10.5.1. "CSV Score Export".

## 8.5. Online Templates

You can adapt the layout of your online exams. The exam layout is defined by so-called online templates. These templates contain information on colors, fonts, display modes for question types, etc.

To adapt the layout of an online exam and create a template according to your own layout wishes, go to the menu "Settings / Online Templates".

The screenshot shows the 'evaexam' web interface. In the top navigation bar, 'SETTINGS' is highlighted. On the left sidebar, 'evaexam Settings' and 'Online Templates' are listed, with 'Online Templates' being the active selection. The main content area is titled 'Online Template Management' and shows a table of 'Customized online templates'.

ID	Name	Basic template	Owner	Actions
3	SEB Online Template	Classic Template	EvaExam Admin	[Edit] [Delete]
6	ACME Co.	Design Template	EvaExam Admin	[Edit] [Delete]
7	Demo 9.0 Template	Design Template	Donna Harwood	[Edit] [Delete]
9	New online template	Design Template	Donna Harwood	[Edit] [Delete]

Below the table is a button: 'Create new customized online template'.

At the bottom, there is a section for 'Online templates' with a table:

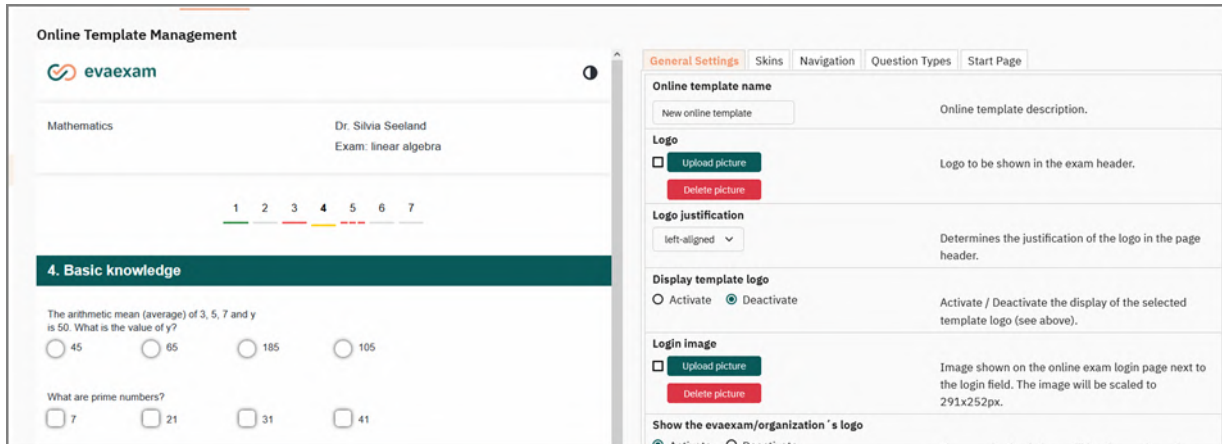
ID	Name	Owner	Actions
1	Classic Template	SYSTEM	[Edit] [Delete]
4	Design Template	SYSTEM	[Edit] [Delete]

**Figure 235: Online template management**

Predefined templates can be uploaded in the bottom area of the window. In the upper area of the window, customized templates are created and managed. Two versions of basic templates are available as standard: the classic template and the design template.

To create your own template, click the button [Create new customized online template] in the upper part of the window. The following screen appears:





**Figure 236: Create customized online template**

In the upper or left half of the window, a preview of the online template is displayed. In the lower half or on the right side of the screen the layout of the template can be edited.

If you are using a wide screen (1680px and wider), the settings area is displayed to the right beside the preview window so that you can check any possible changes directly. All changes made to the layout are immediately shown in the preview.

Numerous functions for customizing the templates are available in four different tabs:

- **General Settings**

The name of the template is defined here, your own logo can be uploaded and aligned, the organization's evaexam logo and the exam header can be shown or hidden.

Here you can enter an individual farewell message displayed in the users' browsers once they have completed the online exam. In order to use this function, you must switch the settings to "Individual message". You can then enter your own HTML text. In the editor, you can use RTF format (bold, italic, underline), adjust the color of the text and include even hyperlinks for forwarding to any website.

**Farewell Message after exam is completed.**

Default Message ▾ This template displays the farewell message after each exam.

**Define your own farewell message**

Use the text editor and HTML tags to design a custom farewell message. After you enter the content, select "Individual Message" in the "Farewell Message" section.

**Farewell message justification**

centered ▾ Determines individual farewell message alignment.

**Figure 237: Farewell message after exam completion**

Finally, you can determine the overall direction of your own completion message. The final message is limited to a width of 700 pixels or 80% of the screen. It appears after the participants of your online exam are submitting.

Furthermore an imprint and the data privacy information can be defined. The imprint and data privacy information will then be shown at the bottom of each online exam. They are always displayed as a link which will open an html page - regardless of whether a text or a link was entered.

**Imprint**

Enter the link to your imprint here or enter the text of the imprint directly.

**Data privacy information**

Enter the link to your data privacy information here or enter the text of the data privacy information directly.

**Figure 238: Online exam - imprint and data privacy information**

- **Skins**

A color scheme for the online template can be chosen in the "Skins" tab from different pre-configured sets. The result is shown immediately in the preview window. If necessary, the colors of individual areas and elements of the template can be additionally adapted using the advanced color settings in the lower area.

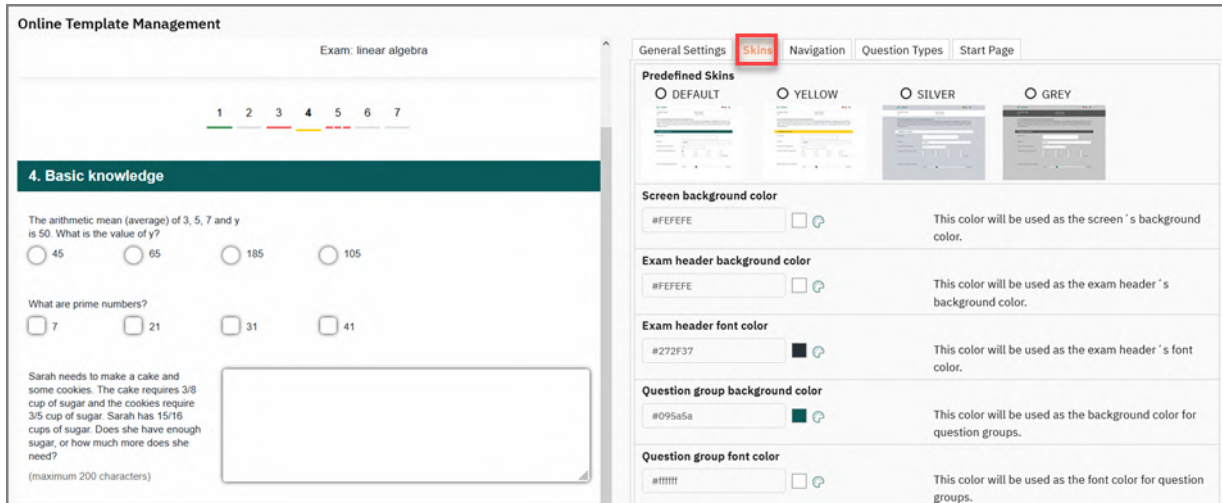














Figure 239: Skins

**Note:**

If you have made adaptations to the colors and afterwards change the color set, the adapted colors are not taken on but rather reset to the standard values of the new color set.

- **Navigation**  
Different elements, such as the page navigation or the progress bar can be shown or hidden here.
- **Question Types**  
Specific settings for different question types can be made here; such as, for example, a remaining character counter for open questions can be displayed, deselection of answer options can be allowed or larger controls can be activated.
- **Start Page**  
Online exams and online practices are opened from a start page. Here you can, for example, enter an information text and set up confirmation boxes. You can find detailed information on setting up a start page in Kapitel 2 8.1.6. „Start Page for Participants“.

Whilst customizing the template, you can change between the different tabs at any time. Once you have completed your editing, click on the button [Apply]. The template just created now appears in the overview:

Online Template Management				
Customized online templates				
ID	Name	Basic template	Owner	Actions
3	SEB Online Template	Classic Template	EvaExam Admin	  
6	ACME Co.	Design Template	EvaExam Admin	  
7	Demo 9.0 Template	Design Template	Donna Harwood	  
9	Sample	Design Template	Donna Harwood	  
<a href="#">Create new customized online template</a>				

**Figure 240: Customized online exam template – overview**

With a click on the pencil icon, the template can be edited at any time, or deleted by clicking on the red cross-icon. Also, with the help of the page icon you can make a copy. The copy appears in the list as a new template and can be edited further.

After you have created your template you can use it for your online exams. When creating an exam, select the template you created from the drop-down menu “Online template”:

### Create Exam - Exam Options

Please select the type of participant capturing:

☒ Entry of student ID by participants  
The exam sheet does not contain participant information. The exam participants have to identify by manually entering their student ID.

☐ Participant import  
The participant data is already connected to the individualized exam sheets. To do this, you will have to import participant data (name, student ID) in a later step.

☐ Close exam upon creation (participants cannot access the exam)

☐ Time Limit:  Minutes

☐ Show student report after submit  
Attention: If this option is activated and the exam does not contain any open questions that have to be scored, the participants will be shown the single student report in the browser after submitting the exam. Do not activate this option if you do not wish to provide the results immediately and automatically.

Online Layout:

Complete ▼

Online template:

Design Template ▼

Classic Template

SEB Online Template

Design Template

**Figure 241: Select online template when generating an exam**

The new template will then be used for the online exam:

00:45

### 1 Common questions

1.1 Which elements can you delete in the System Cleaning?

☐ PSWD's ☐ Received emails  
☐ Sent emails ☐ Entries in the log book

1.2 Which log files are not shown in "System Settings"?

☐ Login Log ☐ Deliveries ☐ User Creation Log  
☐ Deletion Log

1.3 What is the use of module evaluation?

**Figure 242: Template in the online exam**

### Hint:

A designed online template can also be used as layout for online practices and online quizzes. When creating an online practice or quiz, select the template you created from the drop-down menu "Online template" as described above for online exams (Figure 241: Select online template when generating an exam).

## Accessibility information

The HTML content generated by evaexam is optimized with regard to accessibility. Especially for participants in online exams and exercises, special help is inserted into the screen output. This type of content can be recognized by screen reading programs (so-called screen readers) and output via voice output for better understanding of the content. As a result, people with disabilities can also easily take part in online exams.

Evasys GmbH follows the Web Content Accessibility Guidelines (WCAG 2.1), which in turn are the basis of national guidelines (such as BITV or ADA Section 508) as well as the European standard EN 301549. From a technical point of view, the presentation of online exams is accessible according to the WCAG 2.1 Level AA guidelines. However, the creator of the exam sheet and online template must observe a few points to ensure fully accessible online exam access.

## Create a barrier-free online exam

Accessibility is also becoming increasingly important in the field of online exams. By following international standards such as WCAG 2.1 (Web Content Accessibility Guidelines 2.1), the US Section 508 and the European standard EN 301 549 for barrier-free design of websites, people with disabilities should be able to access the contents of websites as easily as possible. Evaexam can be used to design online exams that fulfill the accessibility requirements of WCAG 2.1 Level AA from a technical point of view. With evaexam 8.1, a template is available that you can use for accessibility

compliant exams. However, the creator of the exam sheet and online exam must also consider some important aspects in order to ensure the most accessible access to the exam sheet for all participants:

- Colours and contrasts
  - The online template should not be too colourful. Use few colours with high contrasts.
  - According to WCAG 2.1, the contrast ratio must be at least 4.5:1 for level AA and at least 7:1 for level AAA. To determine the contrast ratio, a tool such as the "Color Contrast Analyzer", which is available free of charge, can be used.
  - Avoid colour combinations such as red on green or red on blue as well as pastel shades in combination with white; some people may find it difficult or impossible to distinguish them.
- Graphics
  - If you use graphics that are not purely decorative but serve informative purposes, they must be provided with an alternative text.
  - Alternative texts can be stored when uploading an image into the image library and - if necessary - can be set or edited here later. Use the "Description" field in the image library wizard for this purpose.
  - The alternative text should not exceed 80 characters. Do not use introductions such as "The figure shows..."; graphics are already announced as such by the screen reader.
- Links and link texts
  - If you use links - e.g. in the introductory texts of your survey - always use meaningful link texts. Tip: Imagine that you see this link text outside the context? The link target should always be clear even outside the context.
  - Do not use Internet addresses (URI, URL) as link texts.
- Online display
  - If you use your own customized online template: Do not use the "slider option" for scaled questions and do not use the "progress bar option".
  - If you use an online template that we have customized as part of a customizing request, it is not automatically compatible with WCAG 2.1 Level AA because it uses its own internal structures.
- Language
  - If possible, exam sheets should be created in the standard language of the evasys system, since screen readers use the respective language defined in the source code as the basis for the pronunciation (e.g. German or English).
- Sensory information
  - Avoid information that relates solely to the visually visible position, e.g. left, right, top or bottom. Always link such descriptions to another characteristic, for example, one that appears in the text.
  - Also avoid information that refers to color alone.



- Font (the following first two bullet points are not required for WCAG 2.1 compliance, but recommended)
  - Use sans serif fonts (not Times New Roman).
  - Do not use italics (difficult to read) and underlines (can be confused with links).
  - Set free text left-aligned, this makes it easier to read for users of magnification systems (Level AAA).
- Comprehensibility (required for conformance level AAA, but also recommended for level A and AA)
  - Do not use abbreviations, e.g. for abstention (no n.a.), write out the texts.

When opening an online exam, evaexam checks whether the exam sheet and template meet the basic accessibility requirements. If this is the case, a conformance logo is displayed in the footer of the online exam. Clicking on the logo opens a declaration of conformity in a new window, which identifies the online exam as WCAG 2.1 AA compliant.

To help you assess the accessibility of the online exam, you can find a voluntary self-disclosure on conformity with the WCAG standard 2.1 in our Accessibility Conformance Report based on the current VPAT®. This voluntary self-disclosure is available for download in the evaexam extras.

If an online exam does not meet the criteria, the conformance logo will not be displayed. If you want to find out why exactly the logo is not displayed, you can check this with the help of the so-called Javascript console of your browser. In Firefox, open it via the keyboard shortcut: Ctrl+Shift+J. In Internet Explorer 11, you open it via the "F12" key and a mouse click on the "Console" tab in the window that opens.

If the logo is not visible, the reason for this should be displayed in the console in English. The following messages are possible, which you can see in the table below.

Message	Meaning
wcag-logo disabled, as a progressbar is in use, which is not completely accessible.	The progress bar is not WCAG2.1 compliant. You can disable it in the settings of your online template.
wcag-logo disabled, as a non-system-template is used for rendering.	All templates based on individual customization of HTML, CSS and logic are generally not provided with the logo, as they would have to be tested for this. If you want to perform an accessible test, please use an online template configured with the evaexam functionality.
wcag-logo disabled, as mobiledevice-layouts are not completely accessible.	As soon as the system has detected that it is being displayed on a mobile device, it is generally assumed that the display is not accessible. This is done for safety, since it is not foreseeable on which of the many different platforms problems will occur.
wcag-logo disabled, as scaled-questions, single-choice and/or multiple-choice-questions are displayed using images in order to have bigger input-elements.	If the "Large controls" option is enabled in the online template you are using, WCAG2.1 compliance cannot be guaranteed because the larger controls are implemented using images. If necessary, deactivate the option in your online template.
wcag-logo disabled, as hotspot questions exist	If the exam sheet contains hotspot questions, the exam is no longer accessible and therefore not WCAG2.1-compliant.
wcag-logo disabled, as there are some videos in use, which are not proofed to be completely accessible.	If the exam contains video elements, it will be marked as non-accessible by default, as there is no guarantee that the videos are configured to be fully accessible. With the help of subtitles and descriptive texts, however, the accessibility can be increased significantly.
wcag-logo disabled, as there are some audiofiles in use, which are not proofed to be completely accessible	If the exam contains audio elements, it will be marked as non-accessible by default, as there is no guarantee that the audio files are configured to be fully accessible. With the help of descriptive texts, however, the accessibility can be increased significantly.

Tabelle 3: Accessibility messages

## 9. Score Open Questions Online

### 9.1. Scoring

When exam sheets for online exams / practices contain open questions, before opening the report the open questions have to be evaluated. The same is true for paper exams for which open questions have been defined that will not be evaluated on the form (see chapter 5.11.4. "Evaluation of Open Questions"), but will be evaluated online after having scanned the forms.

The exam then shows the status “Scoring”.

**Hint:**

Before the status “Scoring” is displayed, the verification may have to be carried out (see chapter 5.17.3. “Verification”).

Exams in Folder "English"													
Type	Name	Details	Status	Template	Created	Processed	Sheets	# Forms	Original Scans	Report	Export	Actions	Request
	English Literature		Evaluated	EngTest	28.10.2020	29.10.2020	8	5		v			
	English 101		In progress	EngTest	29.07.2021	--	3	0					
	Demo2021		▸ Scoring	SampleEx01	02.08.2021	03.08.2021	3	1					
	Shakespeare 101 2022		In progress	EngTest [+2]	20.05.2022	--	2	0					

**Figure 243: Exam State “Scoring”**

Click the text “Scoring” to access the menu “Scoring for open questions”. In the upper section select the open question for which you want to do the scoring. Now all corresponding answers of this question will be displayed.

If you have entered a solution text when creating the question in the VividForms Editor, this text is displayed in the section “Solution”. By clicking on the title you can hide or display the solution.

For paper-based exams, it is possible to have a view on the entire answer sheet. This allows the examiner to see answer text, which has been written outside of the answer box (eye icon on the right side).

Enter the score in the column “Points”. Only values which do not exceed the defined maximum score for this question will be accepted.

**Hint:**

When online scoring open questions and segmented open questions (ICR), it is possible to place marks or add text to the original scan using “comment stamps”.

Therewith e.g. subtractions of partial points or given points can be noted directly on the original sheet of a participant. The markings can be e.g. “+1” or “-1”.

Detailed information can be found in chapter 9.2. “Comment stamp”.

Scoring for Open Questions & Segmented Open Questions

Exam: Example for Scoring Question selection

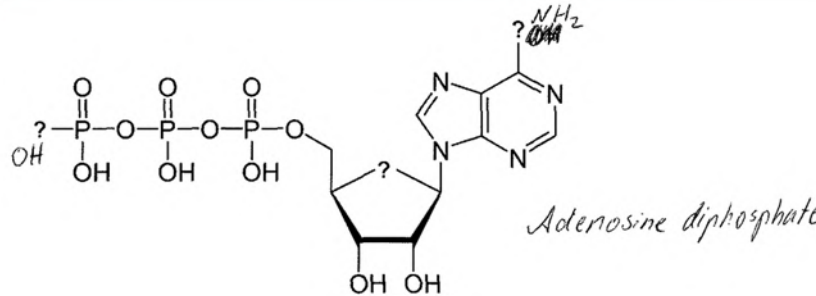
Questions:

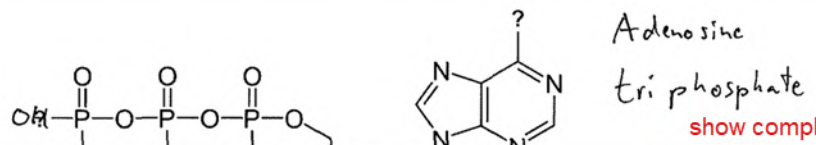
ATP: Please fill in the missing elements and write the complete name of ATP (0/2) (Maximum Score = 5) ▾

☐ Hide questions and answers already scored

Stamp:  Undo

Answers Points





Scoring

show complete sheet
add comment

Figure 244: Evaluate Open Questions Online

## 9.2. Comment stamp

To add a comment stamp to the original scan, you have to enter your comment in the area "Stamp" first (e.g. text or subtractions of partial points like "-1").

In the example (Figure 245: Add a comment stamp) the comment "very detailed - therefore 1 additional point in the overall result" was entered in the area "Stamp".

The entered comment can then be placed on the original scan with a left mouse click.

The button [Undo] deletes the entered comment stamp from the original scan.

After clicking [Save] the entered comment stamp will be placed directly on the original scan (see Figure 246: Comment stamp on the original scan).

### Note:

- Please note, that after clicking [Save] the entered comment stamp can neither be edited nor deleted.
- Points and comment stamps are also saved when changing the page (forward / back). Therefore, the editing or deletion of the comment stamp is not possible anymore. A corresponding warning message is shown.
- The comment stamp is only available for paper-based exams with online scoring (see section "Evaluate Later Online:", page 17).

**Hint:**

- To define a new comment stamp, you always have to enter the new text at the top of the page in the area "Stamp". The new comment stamp can then be placed as usual. Existing comment stamps do not change.
- Instead of using the button [Save], you can use the shortcut "Ctrl+S" for saving and "Ctrl+Z" for undoing your entries.

**Exam: Example for Scoring**

Questions:

ATP: Please fill in the missing elements and write the complete name of ATP (0/2) (Maximum Score = 5) ▾

☐ Hide questions and answers already scored

Answers

Stamp: triphosphate! Undo

Points

Adenosine diphosphate  
triphosphate!

3

**Figure 245: Add a comment stamp**

2.1 Please explain how to create a subgroup report:

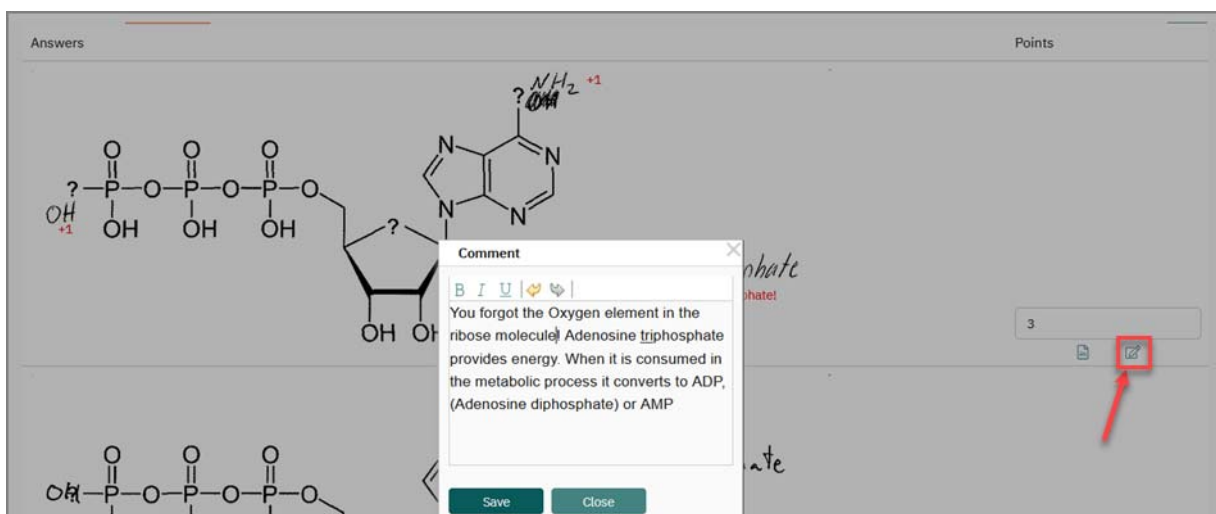
very detailed – therefore 1 additional point in the overall result

Report creator – details of a report – evaluate Subgroup-  
Select one or several criteria – assign a relevant  
report name / instead of selecting several criteria → you  
can create several subgroup reports of one original report

**Figure 246: Comment stamp on the original scan**

### 9.3. Add a comment (individual report)

By clicking on the note symbol on the right side of the entry box you can add a comment to the scoring of each particular answer. If a comment has been entered, this will be displayed when you move the mouse over the icon.



**Figure 247: Add comment**

If desired, the comment can be displayed in the single student report. This way, it can be used for discussing the results with the participants. For further information on configuring the student report see below chapter 10.2.2. "Student Results Report for the Participants".

Click [Save] at the bottom of the page to apply the changes. After having worked through all open questions, click [Complete Scoring].

You will now get back to the exam list. The status of the exam has changed to "Evaluated". You can now open the report.

## 9.4. Shared scoring

In order to simplify the collaboration of several people it is possible that examiners share individual exams with other examiners so that they can also carry out online scoring.

The shared scoring is only available if your evaexam administrator activated the option "Share Scoring" in the menu "System Settings/evaexam Settings/Exam".

In the details of your exam you can release your exam for shared scoring in the area "Assign rights for shared scoring":

Exam Details	
Exam	Example for Scoring
Folder	Geography
Type	Paper based (Hard Copy)
Participants	3 - Participant import
Exam sheet	Geographics_102
Grading Scale	no scale assigned
Status	▶ Scoring
Exam Created on	01.06.2022 at 09:27:31
Last data collection On	01.06.2022 at 09:44:45
No. of Returns	2

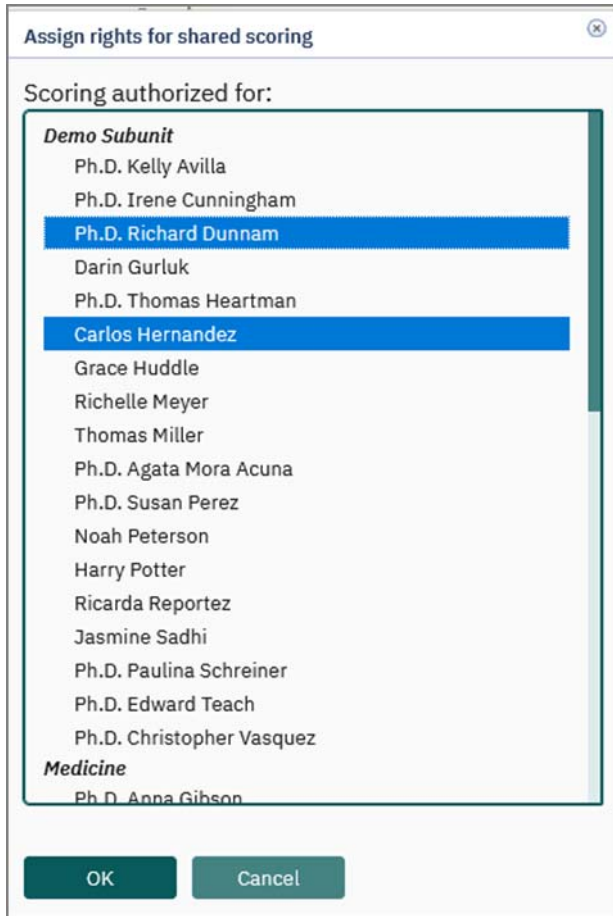
  

Actions	
Request sheets	
Administrative participants	
Activates the display of exams in the LMS via LTI®	
Finish Data Collection, Close Exam	
Grading Scale: no scale assigned ▼	OK
Change grading scale for the exam	
Rename Exam	
Restore Exam	
Move Exam	
Assign rights for shared scoring	
Delete Exam	

**Figure 248: Assign rights for shared scoring**

A window opens automatically in which you can select one or more examiners via mouse click. It is possible to select several examiners using the Ctrl key. The examiners selected here can then also score the exam. Save your changes via clicking [OK]:





**Figure 249: Select examiners for shared scoring**

To share the scoring with the selected examiners, you have to confirm the selection in the next window via [OK]. [Cancel] returns you to the selection of the examiners without saving.

The released exams can be found in the menu “Actions/Shared Scoring”. In the upper area you will find all exams which have been shared with you by other examiners for scoring. In the area below you will find all exams you have shared with other examiners for scoring.

The screenshot shows the 'evaexam' web application interface. On the left is a sidebar with a tree view of folders including 'Biology', 'Computer Scienc...', 'Demo Folder 202...', 'Documentation', 'English', 'evasys Training...', 'Exams 2022', 'Geography', 'Practices', and 'Grading Scale'. The 'Shared Scoring' option is highlighted in the sidebar. The main content area has a top navigation bar with 'ACTIONS', 'SETTINGS', 'INFO', and 'EXTRAS'. Below this, the 'Shared exams for scoring' section is highlighted with a red box. It contains a table with one row: 'Mathematics I - Analysis' by 'Noah Peterson' with exam sheet 'SampleEx01', created on '14.12.2018', and processed on '14.12.2018'. Below this, the 'All exams I have shared' section is also highlighted with a red box. It contains a table with three rows: 'Basic Knowledge' (Status: 'Evaluated'), 'Word Basic Knowledge' (Status: 'Scoring'), and 'Example for Scoring' (Status: 'Scoring'). Each row in this table includes an 'Exam sheet' link, creation and processing dates, and an 'Actions' column with icons for download, share, and edit.

Type	Name	Examiner	Exam sheet	Created	Processed	# Forms	Actions
	Mathematics I - Analysis	Noah Peterson	SampleEx01	14.12.2018	14.12.2018	1	

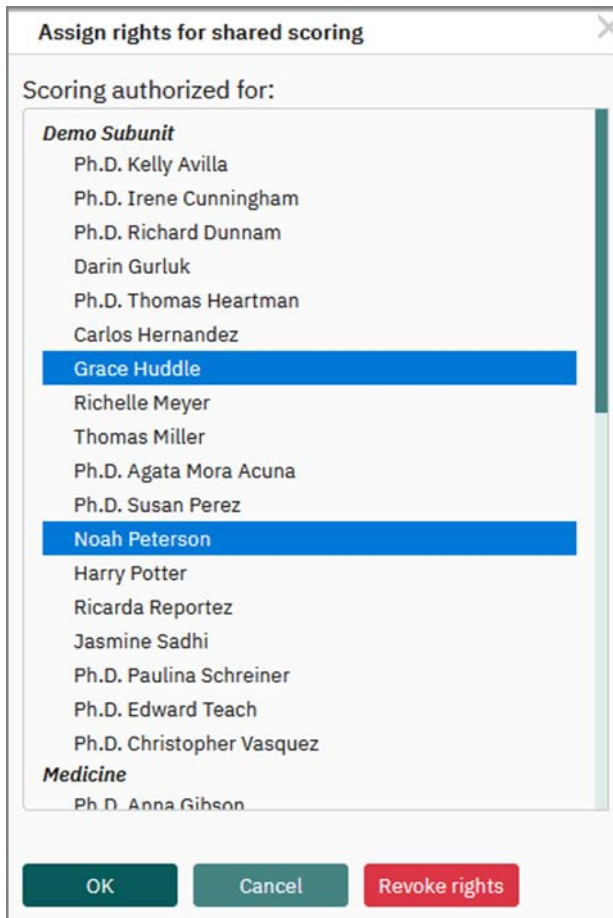
  

Type	Name	Status	Exam sheet	Created	Processed	# Forms	Actions
	Basic Knowledge	Evaluated	SampleEx2	13.12.2018	06.08.2019	2	
	Word Basic Knowledge	Scoring	ICR_Testbogen	07.12.2018	07.12.2018	6	
	Example for Scoring	Scoring	Geographics_102	01.06.2022	01.06.2022	2	

**Figure 250: Menu “Shared Scoring”**

To score the exams which have been shared with you, you can either click on the name of the exam or on the blue arrow in the column “Actions”. In both cases the exam scoring will be opened automatically. You can score, add comments and comment stamps as usual (see chapter 9.1. "Scoring", chapter 9.2. "Comment stamp" and chapter 9.3. "Add a comment (individual report)").

Via the “green person icon with a yellow arrow” in the column “Actions” you can view and if necessary edit the release of your exams you have shared with other examiners for scoring:



**Figure 251: Edit the rights for shared scoring**

Via the “eye icon” in the column “Actions” and also via clicking on the name of your own exam, the details of the exam will be opened.

**Note:**

- All of your own exams with activated shared scoring are basically shown in the menu “Shared Scoring”. That means, that also exams are displayed which have to be verified before scoring. These exams have the status “Verification”. All shared exams with the status “Verification” will not be shown in the accounts of the other examiners. They are only displayed to the other examiners after the verification has been completed. The status is then “Scoring”.
- According to the shared scoring it is possible to have more than one person doing the scoring at the same time. If two persons work on the same open question at the same time the points will be overwritten. The last stored input is always saved. Please note, that in this case by all means each user has to edit his/her own open question, i.e. two persons may not work on the same open question at the same time.

**Note:**

If more than one person works with your examiner account, it is possible to have more than one person doing the scoring for open questions of an exam at the same time. Please note, that in this case by all means each user has to edit his/her own open question, i.e. two persons may not work on the same open question at the same time. This could lead to undesired effects.

Please note, that in general it can lead to problems if several people work with the same examiner account and perform similar actions at the same time, such as editing an exam sheet simultaneously. If you share an account, you should always take careful arrangements for the organization of work.

## 10. Evaluation

After having scanned, verified and scored the open questions, the status of the exam switches to “Evaluated”.

Type	Name	Details	Status	Template	Created	Processed	Sheets	# Forms	Original Scans	Report	Export	Actions	Request
	Climate change and its impact on agriculture		In progress	MyQuestionnaire	25.08.2020	--	15	0					0
	Renewable natural resources		In progress	SampleEx01	25.08.2020	--	71	0					0
	Sustainable Fisheries and Farming Techniques		<b>Evaluated</b>	SampleEx01	25.08.2020	25.08.2020	35	1					
	Demo Exam Subtesting		<b>Evaluated</b>	Demo-Subtesting [+1]	19.11.2020	20.11.2020	6	3					
	Sample exam		<b>Evaluated</b>	Geographics_101 [+2]	20.05.2022	20.05.2022	5	2	ALL				0
	Example for Scoring		<b>Scoring</b>	Geographics_102	01.06.2022	01.06.2022	3	2					

**Figure 252: Exam State “Evaluated”**

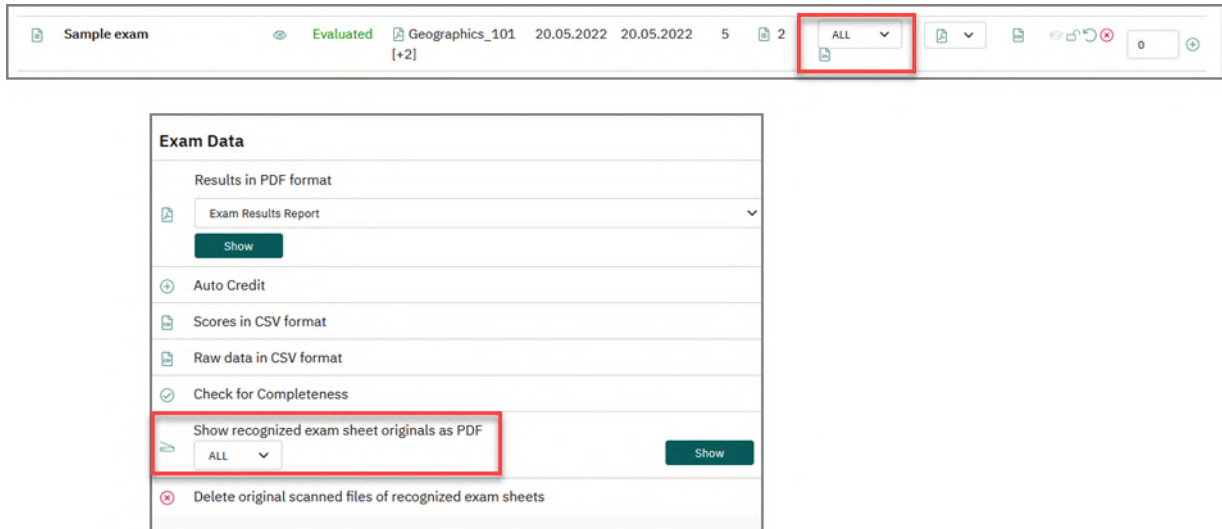
In the exam list and in the exam details (which can be accessed by clicking the name of the exam), several functions and tools for evaluating the exam are available. These are described in the following chapters.

Actions	Exam Data
<div>Create additional individualized exam sheets: <input type="text" value="0"/> <div>Request</div></div>	<div>Results in PDF format <div>Exam Results Report</div><div>Show</div></div>
<div>Activates the display of exams in the LMS via LTI®</div>	<div>+ Auto Credit</div>
<div>Finish Data Collection, Close Exam</div>	<div>Scores in CSV format</div>
<div>Grading Scale: <div>no scale assigned</div> <div>OK</div></div>	<div>Raw data in CSV format</div>
<div>Change grading scale for the exam</div>	<div>✓ Check for Completeness</div>
<div>✎ Rename Exam</div>	<div>Show recognized exam sheet originals as PDF <div>ALL</div> <div>Show</div></div>
<div>↺ Restore Exam</div>	<div>✗ Delete original scanned files of recognized exam sheets</div>
<div>📁 Move Exam</div>	
<div>👤 Assign rights for shared scoring</div>	
<div>✗ Delete Exam</div>	

Figure 253: Exam Details

## 10.1. View of the scanned exam sheets as pictures

The option “Original Scans” in the exam list allows you to directly access the originally scanned forms. You can also open the forms with the option “Show recognized form originals as PDF” in the exam details.



**Figure 254: Opening the Scanned Exam Sheets**

In the drop down list the scanned exam sheets of the single exam participants are listed by examinee-ID. You can either select a single exam sheet or select all scanned sheets.

When clicking the green arrow icon and the corresponding [Show] button, the original image files will be displayed. Colored frames show the crosses which have been detected and evaluated by the VividForms Reader when analyzing the forms. Green frames mark correct, red frames mark incorrect answers. Next to the frame the score attained for the answer option is shown.

1.2 Assign the following twin towns of Hamburg to their respective countries.

	Germany	USA	Japan	France	Nicaragua
Marseille	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Dresden	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osaka	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
León	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Chicago	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

0P

1.3 Which of the following persons are honorary citizens of the city of Hamburg?

1P ☒ Uwe Seeler  
 0P ☐ Günther Jauch  
 1P ☒ Helmut Schmidt  
 0P ☐ Siegfried Lenz  
 0P ☐ Johann Sebastian Bach  
 0P ☐ Willy Brandt

Figure 255: Displaying the Originals as PDF

In the top margin, the total score attained by a participant in the entire exam is displayed. In the bottom margin, the total points achieved on the current page are displayed.

The display of original scanned forms can be important when exam participants have questions concerning their exam results and approach the examiner for clarification. With the help of the examinee-ID the examiner can determine the relevant form and use it when discussing the results.

## 10.2. Exam Reports

To analyze the exam, there are two different reports available: The exam results report, which is an overall report on the results of the exam, and the student results report, which contains an analysis for each participant. Both reports can be opened in the exam list and in the exam details.



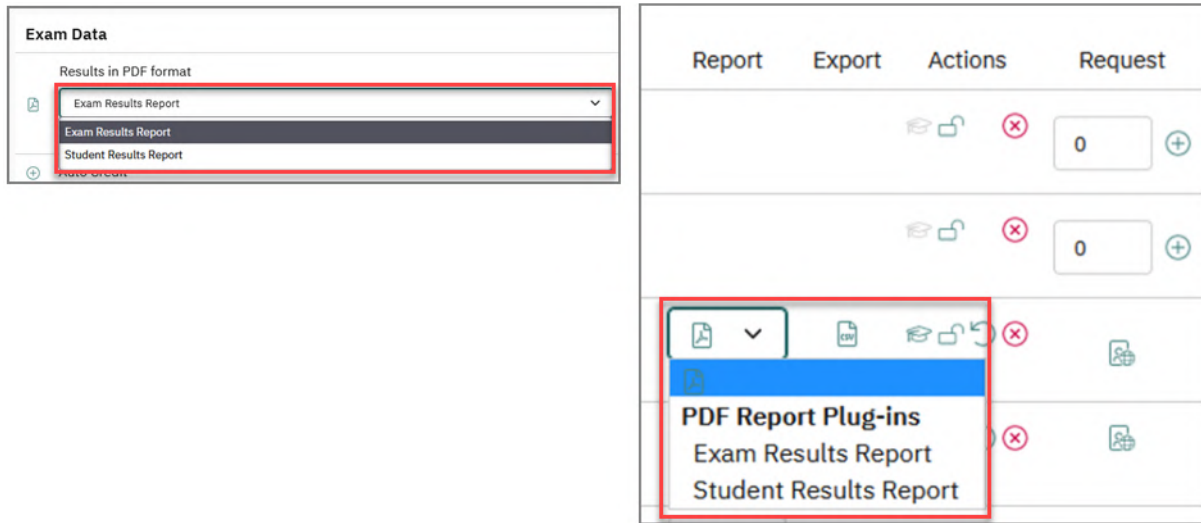


Figure 256: Report in the exam list and in the exam details

- [Exam Results Report](#)
- [Student Results Report for the Participants](#)

### 10.2.1. Exam Results Report

The exam results report consists of four sections:

- Evaluation of questions
- Exam overview
- Summary report and question analysis
- Table of scores

An index is at first used as a cover sheet for the report:

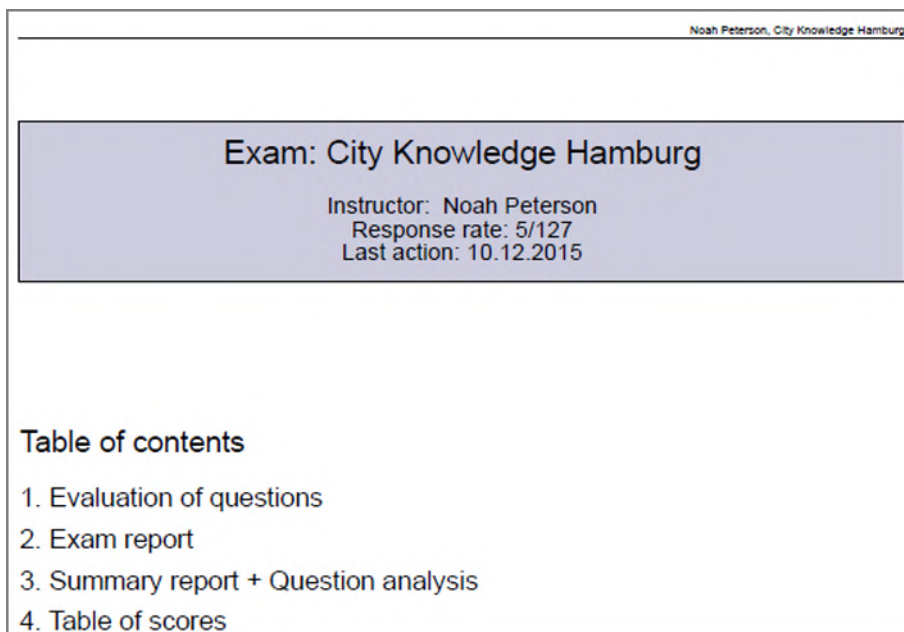


Figure 257: Index directory PDF Overall Result Proof

The first chapter “Evaluation of questions” consists of an overview of the allocation of points for each question and a graphic and tabulated evaluation of the results.

For all closed questions, in addition to the absolute and relative response numbers, the following values are calculated:

- **Level of difficulty:** Average of the attained points of all participants/maximum attainable points for the question, values lie between 1 (all participants attained maximum points) and 0 (all participants attained 0 points). If wrong answers were assigned negative scores, then the level of difficulty can be in a negative range of values (e.g. attained points: -20; maximum attainable points: 100; level of difficulty:  $-20/100 = -0,2$ ).
- **Correlation:** Correlation between points attained with this question compared to the overall result of all questions excluding this one; values lie between 1 (every participant who reached the highest possible score at this question also reached the highest possible score in the overall result) and -1 (every participant who reached the highest possible score at this question reached the lowest possible score in the overall result).

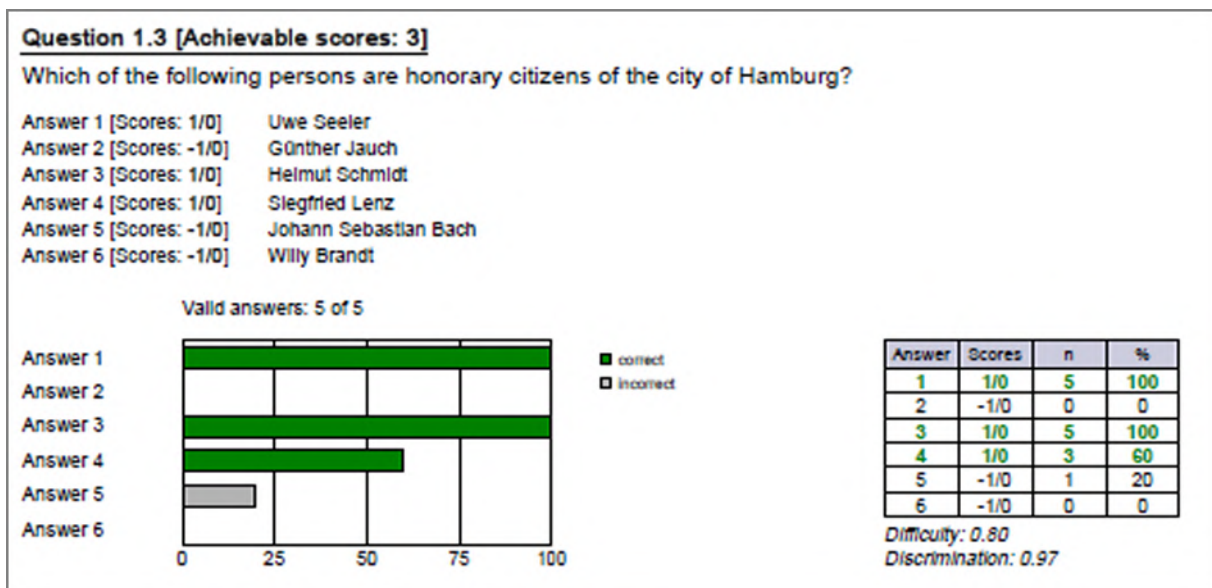


Figure 258: Evaluation of a Single Choice/Multiple Choice Question

With open questions, a tabulated overview shows the average, minimum and maximum points, the median, the upper and lower quartile, the standard deviation and the correlation:

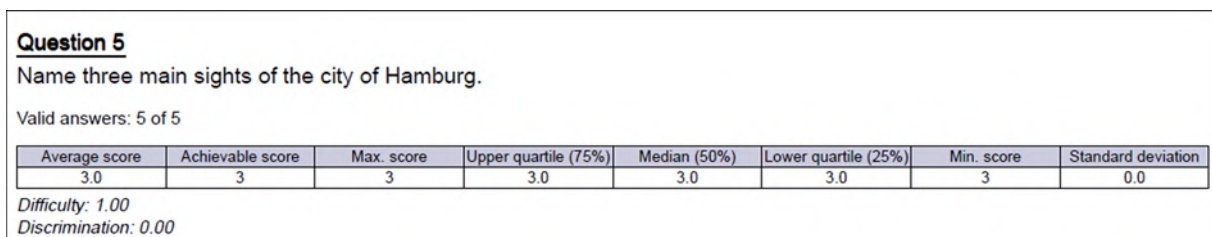


Figure 259: Evaluation of an Open Question

The second part consists of a list of the examinee-IDs, the corresponding sheet ID, each score and the total points:

## 2. Exam report

Participant ID	Questionnaire	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Total
12345678	6	0	1	3	2	3	3	1	13
12345679	7	1	1	1	2	3	3	1	12
12345680	8	1	1	1	2	3	3	1	12
12345681	9	1	1	3	2	3	3	1	14
12345683	10	1	1	3	0	3	3	1	12
Average		0.8	1.0	2.2	1.6	3.0	3.0	1.0	12.6

Figure 260: Overall Result Proof – Exam Overview

The third part of the result proof comprises a summary report in tabulated and graphic form as well as an analysis of each question:

## 3. Summary report + Question analysis

### Score distribution

Participants	Achievable score	Average score	Max. score	Min. score	Median (50%)	Standard deviation
5	14.00	12.60	14.00	12.00	12.00	0.89

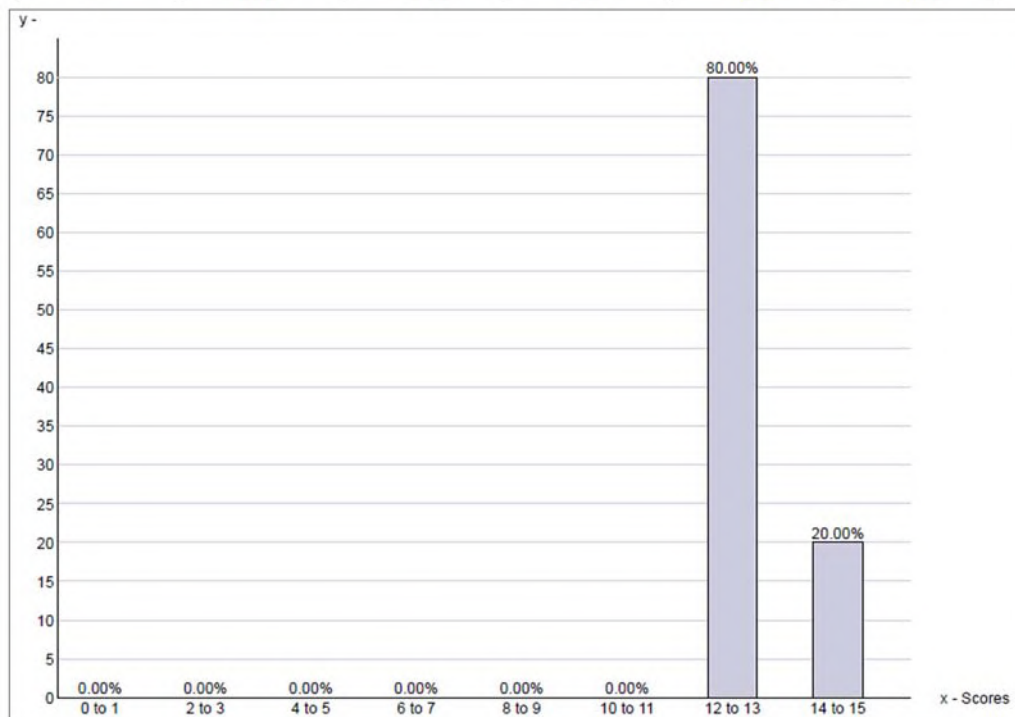


Figure 261: Comprehensive Report - Point Distribution

If defined, you will then see a spreadsheet evaluation and graphic evaluation of the grading key and pass rates for the exam. For information on using the grading key, see chapter 10.4. "Using Grading Scales".

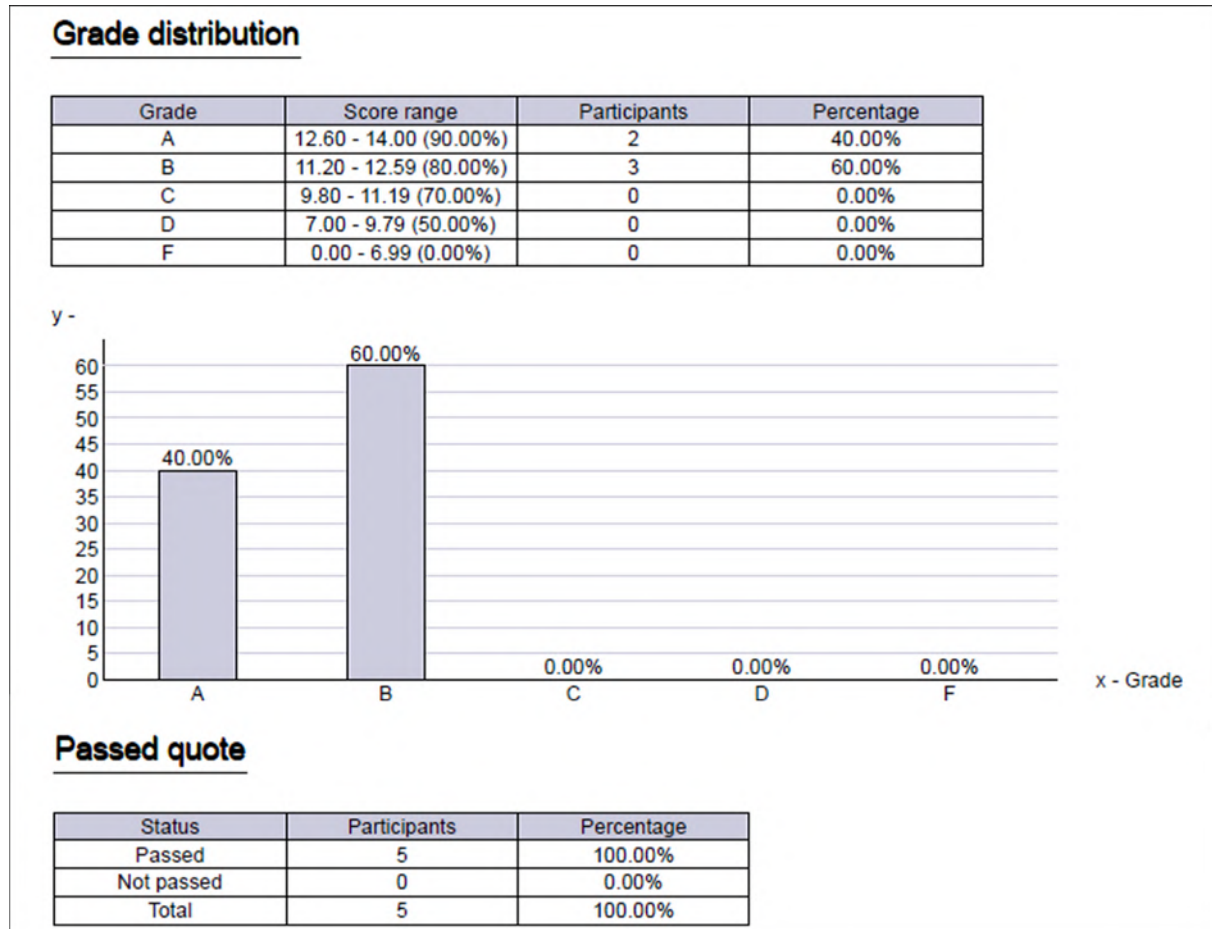


Figure 262: Grade Distribution

You will then see a spreadsheet displaying an item analysis of the individual questions:

**Question analysis**

	Question type	Difficulty	Discrimination
Question 1	Single Choice	0.80	-0.61
Question 2	Single Choice	1.00	0.00
Question 3	Multiple Choice	0.73	-0.61
Question 4	Multiple Choice	0.80	-0.56
Question 5	Open Question	1.00	0.00
Question 6	Matching Question	1.00	0.00
Question 7	Kprim	1.00	0.00

Figure 263: Question Analysis

The fourth and final part contains a table of scores. It includes the examinee-IDs and the number of points attained by the participants. If you have defined a grading key for the exam, then the analysis will also display both the grade and whether or not the participant has passed (see chapter 10.4. "Using Grading Scales").

4. Table of scores - Hamburg

Participant ID	Score	Grade	Passed
12345678	13	A	Yes
12345679	12	B	Yes
12345680	12	B	Yes
12345681	14	A	Yes
12345683	12	B	Yes

**Figure 264: Notice with Grade Information**

### 10.2.2. Student Results Report for the Participants

In addition to the exam results report, you can also open the student results report which contains an individual analysis of the exam for each participant. You can use the bookmark function in the PDF to show the report of a specific participant. The examinee-ID is used as a bookmark.

The individual evaluation of the participant's exam begins with a header, followed by the relevant participant ID and the participant's total result. This is followed by a detailed individual evaluation containing the results from each question. In the case of open questions, only the number of points achieved is given in the detailed individual evaluation, not the participant's answer text.

The screenshot shows a PDF reader interface with a sidebar on the left titled 'Lesezeichen' (Bookmarks). The sidebar lists six participant IDs: 12-345-678, 12-345-679, 12-345-680, 12-345-681, and 12-345-683. A red arrow points from the text 'Bookmarks for every participant' to this list. The main content area displays the report for 'Exam: Hamburg' by 'Instructor: Noah Peterson'. It shows the 'Result for the participant' for 'Participant ID: 12-345-678' and 'Questionnaire: A'. A table summarizes the results:

Score	Max. score	Percentage	Grade
13	14	92.9%	A

Below this is the 'Detailed Student Report' for '1. Hamburg Knowledge'. It includes 'Question 1 [Achievable scores: 1]' with the text 'How many people live in the city of Hamburg?'. The answers are listed as follows:

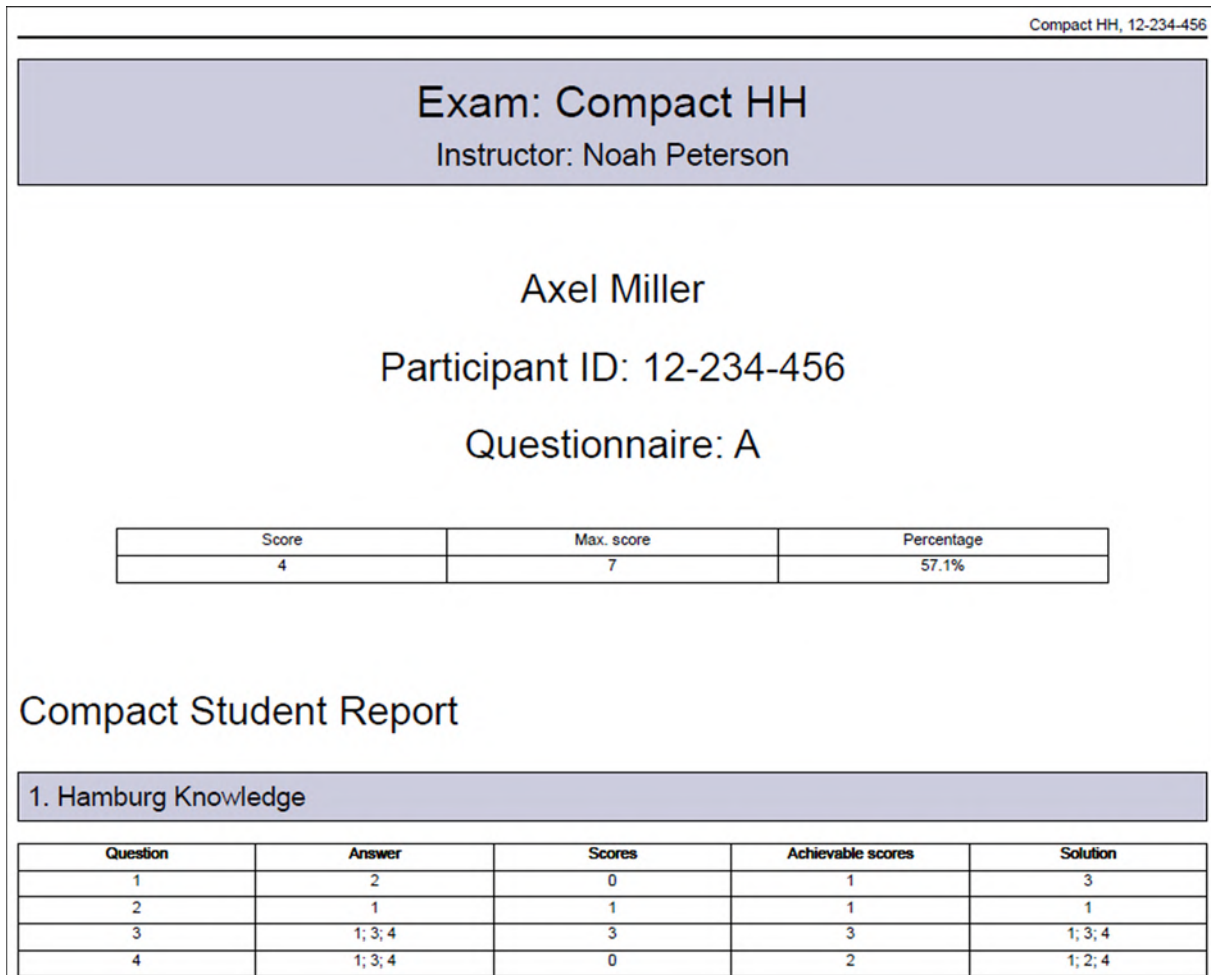
Answer 1 [Scores: 0]	70.000
Answer 2 [Scores: 0]	700.000
Answer 3 [Scores: 1]	1.700.000

**Figure 265: Detailed Individual Report in PDF Reader**



In the case of open questions, only the number of points achieved is given in the detailed individual evaluation, not the participant's answer text.

If the exam report does not contain matching questions, it can also be displayed as a “compact report”. In this case it only contains a brief tabular overview on the participant results.



**Figure 266: Compact report**

The display mode (detailed report or compact report) and the content of the student results report can be configured. The evaexam administrator can do central presets. You as examiner can adapt these to your needs.

### Configure Student Results Report

To adapt the student results report open the menu “Settings/Student Report Settings”.

**evaexam** ACTIONS **SETTINGS** INFO EXTRAS Help

**Account**

- User Profile

**Tools**

- evaexam Settings
- Online Templates
- Student Report Settings**
- Write Email

**Student Report Settings (Default)**

Paper Exam & Online Exam: Student report as compact report	Activated	If this setting is activated, the student report will be provided as a shortened compact report.
Paper Exam & Online Exam: Show solutions	Activated	If this setting is activated, the solutions of the single questions (except for open and segmented open questions) will be displayed in the report.
Paper Exam & Online Exam: Show explanation texts	Activated	If this setting is activated, the explanation texts for the single questions will be displayed in the detailed student report.
Paper Exam & Online Exam: Show reference texts	Activated	If this setting is activated, the reference texts for the single questions will be displayed in the detailed student report.
Paper Exam & Online Exam: Show comments	Activated	If this setting is activated, the comments on open questions entered during scoring will be displayed in the detailed student report.
Online Exam: Show hotspot images	Activated	If this option is activated, the images of hotspot questions including the participants' markings are displayed in the detailed single student report. If deactivated, only the result of the question is displayed. <b>Please note:</b> Displaying images can significantly increase the file size of the single student reports, which can affect the retrieval and dispatch. If necessary, deactivate the display of the images before sending them to participants.
Paper Exam: Display scanned forms in student report		

**Figure 267: Configure Student Results Report**

You can do the following settings:

- Paper Exam & Online Exam: Student report as compact report**  
 If this setting is activated, the student report will be displayed as a shortened compact report for exams provided that the exam sheet does not contain matching questions. If this setting is not activated, the detailed version of the report will be displayed.
- Paper Exam & Online Exam: Show solutions**  
 If this setting is activated, the solutions of the single questions will be displayed in the report.
- Paper Exam & Online Exam: Show explanation texts**  
 If this setting is activated, the explanation texts for the single questions will be displayed in the detailed student report. The explanation texts have to be defined beforehand in the VividForms Editor when creating the question.
- Paper Exam & Online Exam: Show reference texts**  
 If this setting is activated, the reference texts for the single questions will be displayed in the detailed student report. The reference texts have to be defined beforehand in the VividForms Editor when creating the question.
- Paper Exam & Online Exam: Show comments**  
 If this setting is activated, the comments on open questions entered during scoring will be displayed in the detailed student report. The comment texts have to be defined beforehand in the VividForms Editor when creating the question.

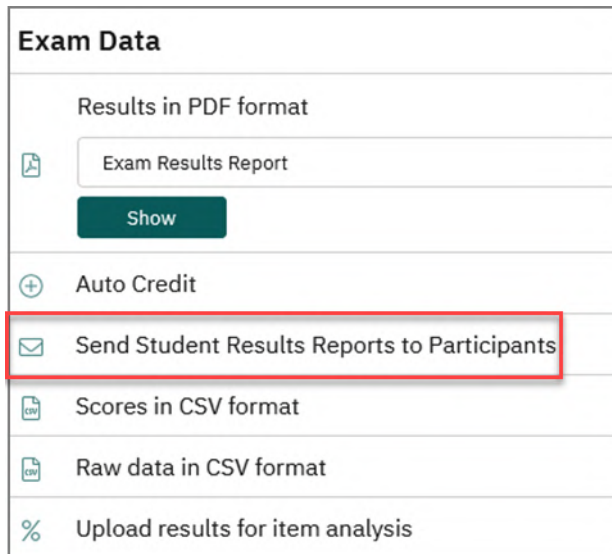


- **Paper Exam: Display scanned forms in student report**  
If this setting is activated, the scanned forms will be displayed in the student report.
- **Online Practice & Online Quiz: Student report as compact report**  
If this setting is activated, the student report will be displayed as a shortened compact report for online practices provided that the exam sheet does not contain matching questions. If this setting is not activated, the detailed version of the report will be displayed.
- **Online Practice & Online Quiz: Show solutions**  
If this setting is activated, the solution texts for open questions which were defined when creating the question, will be displayed in the report.
- **Online Practice & Online Quiz: Show explanation texts**  
If this setting is activated, the explanation texts for the single questions will be displayed in the detailed student report. The explanation texts have to be defined beforehand in the VividForms Editor when creating the question.
- **Online Practice & Online Quiz: Show reference texts**  
If this setting is activated, the reference texts for the single questions will be displayed in the detailed student report. The reference texts have to be defined beforehand in the VividForms Editor when creating the question.
- **Online Practice & Online Quiz: Show comments**  
If this setting is activated, the comments on open questions entered during scoring will be displayed in the detailed student report. The comment texts have to be defined beforehand in the VividForms Editor when creating the question.

Settings which you have done as an examiner overrule the default settings of the administrator. With the button [Restore default settings] you can undo your changes.

### **Send Student Results Report**

The student reports can not only be opened by the examiner, they can also be sent by email to the participants provided you have imported participant data, including email addresses (see chapter 5.9.2. "Type of Participant Capturing: Participant Import").



The image shows a web interface titled "Exam Data". It contains several options: "Results in PDF format" with a sub-option "Exam Results Report" and a "Show" button; "Auto Credit"; "Send Student Results Reports to Participants" (highlighted with a red rectangle); "Scores in CSV format"; "Raw data in CSV format"; and "Upload results for item analysis". Each option is preceded by a small icon: a document for PDF, a plus sign for Auto Credit, an envelope for the highlighted option, a CSV file for CSV formats, and a percentage sign for item analysis.

**Figure 268: Send Student Results Reports to Participants**

After clicking the option a message is shown. If you confirm the message, you will start the mailing process.

### 10.3. Subsequently assign and adapt participant data

For paper and online exams, participant data can be added or imported as CSV data after the exam has been taken. This option is always available to you and is not dependent on whether a participant import was performed in advance or not. The assignment is made by the examinee ID the participant has entered or marked on the exam sheet. In addition, it is possible to correct IDs afterwards if participants have entered them incorrectly.

**Note:**

Please note that a subsequent change of the participant data for an exam with result data is only possible if the exam has been closed. If the exam is still open or has the status "Scoring" or "Verification", the menu item in the details of an exam is not available.

If you want to subsequently correct participant data, please switch to the details of an exam. Here you will find the option "Manage participants" in the section "Actions":

**Actions**

- Exam Dashboard
- Show PSWDs in browser
- Receive PSWDs by email
- Send PSWDs by email to respondents
- Download PSWDs in CSV File
- ☐ Time limit for exam: 0 Minutes
 Apply
- Preview Online Exam
- Administrate participants**
- Scheduled Tasks
- Activates the display of exams in the LMS via LTI\*
- Finish Data Collection, Close Exam
- Grading Scale: no scale assigned
 OK

**Figure 269: Administrate participants**

Once results are available, the first column displays the examinee ID:

Participants of: Online Exam with Participant Import											
Captured ID	ID	First Name	Last name	Email	Address	Title	Custom 1	Custom 2	Custom 3	Edit	Delete
	344567	Tanya	Roberts	t.roberts@example.com							
	346790	James	Williams	j.williams@example.com							
	146789	Robert	Hall	r.hall@example.com							
	996644	Julia	Wilson	j.wilson@example.com							
	487786	Andreas	Smith	a.smith@example.com							

**Figure 270: Overview of participant ID's**

You can upload participant data manually by clicking the green [Add] button or by uploading a CSV file using the blue buttons [Browse] and [Import]:

588773

588773 John Doe br@evasys.de first participation

Add

Delete all

**CSV import of participant data**

Import the participant data
 

No file selected.

Browse...
 Import

Back

**Figure 271: Import CSV file or add data manually**

As soon as you have added participant data either via a CSV file import or manually, a comparison is performed based on the examinee ID and the list of participants is then enriched with the corresponding data:

Captured ID	ID	First Name	Last name	Email	Address	Title	Custom 1	Custom 2	Custom 3	Edit	Delete
	344567	Tanya	Roberts	t.roberts@example.com							
	346790	James	Williams	j.williams@example.com							
	146789	Robert	Hall	r.hall@example.com							
	996644	Julia	Wilson	j.wilson@example.com							
	487786	Andrea	Smith	a.smith@example.com							
	627522	Thomas	Carpenter	t.carpenter@example.com							
	281750	Kyle	Kruger	k.kruger@example.com							
	414087	Jennifer	Willis	j.willis@example.com							
	717866	Bill	Hellman	b.hellman@example.com							
	280579	Kerstin	Kruger	k.krueger@example.com		Ph.D.					
	588773	John	Doe	br@evasys.de			first participation				

**Figure 272: Overview**

Using the yellow pencil icon, you can apply changes to the examinee ID at any time if the ID has been entered incorrectly by the examinee. A comparison based on this ID is then performed again.

**Hint:**

To ensure consistent export files, you can review and edit missing or incorrect examinee IDs, which makes it easier to evaluate result exports. Additional participant data such as first and last name and e-mail address are also included in the exports when they are entered or imported in the participant administration.

To make sure that the PDF report as well as the points in CSV format represent the current results with correct examinee ID, these documents must be retrieved again.

**Note:**

In case of a correction, please make sure that the examinee ID has indeed been entered incorrectly. Results will be assigned to the new examinee ID after correction. If your evaexam system is linked to an LMS, the results will also be displayed in the respective students account!

Changes to the participant ID are registered in the log book. In this way, you can always see which ID is affected by a correction and how it was originally stored in the system. The log book can be accessed in the menu "Info/Log Book":

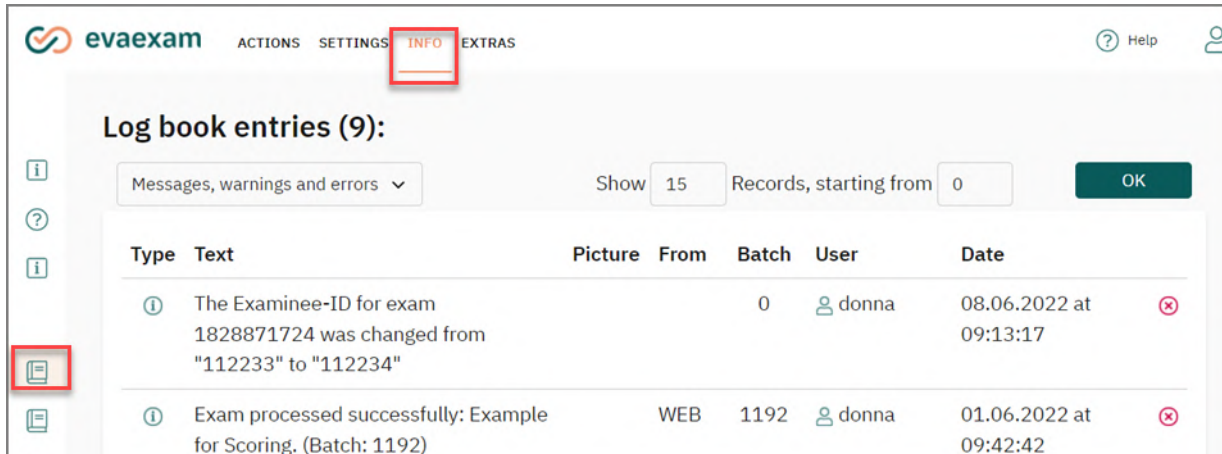


Figure 273: Changes shown in log book

### Import of participant data for an exam with the status „In progress“

If you subsequently want to import participant data for an exam with the status "In progress", a message appears asking whether you want to convert it to an exam with participant import:

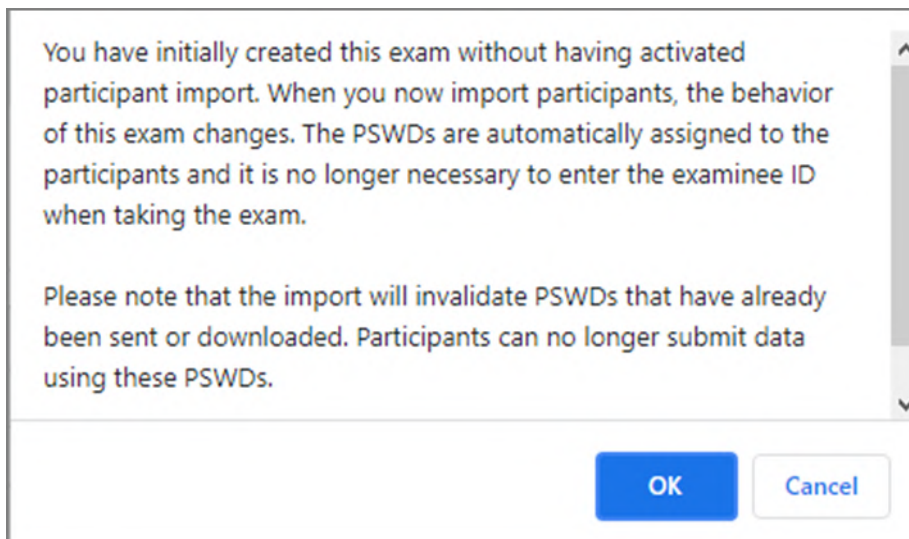


Figure 274: Note displayed when converting an Exam

If this note is confirmed, the exam is converted and the participant administration opens. Converting the exam will invalidate all PSWDs that have been sent prior to the conversion. Please ensure that you provide the participants with the newly generated PSWDs.

## 10.4. Using Grading Scales

By default, the exam report only contains an evaluation with regard to scores. If you also want the exam to be evaluated with regard to grades and the status passed/not passed, a grading scale has to be assigned to the exam.

Grading scales first have to be pre-configured in the system. As soon as this has been done, they can be used for as many exams as desired.

- [Pre-configuring Grading Scales](#)
- [Assign Grading Scales](#)
- [Adapt Grading Scale \(Automatic Adjustment Clause\)](#)

### Hint:

In the “User Guide for creating and analyzing exams with evaexam”, which can be downloaded in the Extras menu, you will find useful information on common grading scales and on ways of how to adapt grading scales in a way that you can correct guessing probabilities of your exam questions.

## 10.4.1. Pre-configuring Grading Scales

To create a grading key, go to 'Exams' which is located in the left hand menu under 'Actions,' and open the menu 'Grading Scale.'

The screenshot shows the 'evaexam' interface with the 'Grading Management' section active. The left sidebar has a red box around the 'Grading Scale' option under the 'Exams' category. The main area shows two tables: 'Standard Grading Scales' and 'Custom Grading Scales'. A red box highlights the 'Add new grading scale' button in the 'Custom Grading Scales' section.

Name	Description	Number of Grades	Created	Actions
University Grade		6	22.09.2020 at 10:28:38	

Name	Description	Number of Grades	Created	Actions
University Grade [Demo Exam Subt]		6	19.11.2020 at 14:30:18	
University Grade [Demo Subtesting]		6	27.10.2020 at 16:09:13	
University Grade [English Literature]		6	29.10.2020 at 17:27:29	

**Figure 275: Grading Scale Administration**

Click the button [Add new grading scale].

Enter a name for the grading scale and a description text in the upper part of the window.

**Add new grading scale**

**Grading Scale Details**

Name:

Description:

Necessary grade to pass the exam:

Name of Grade	Value range (%)	Delete
<input type="text" value="A"/>	<input type="text" value="90.00"/> - <input type="text" value="100.00"/>	
<input type="text" value="B"/>	<input type="text" value="80.00"/> - <input type="text" value="89.99"/>	
<input type="text" value="C"/>	<input type="text" value="70.00"/> - <input type="text" value="79.99"/>	
<input type="text" value="D"/>	<input type="text" value="50.00"/> - <input type="text" value="69.99"/>	
<input type="text" value="F"/>	<input type="text" value="0.00"/> - <input type="text" value="49.99"/>	
<input type="text"/>	<input type="text"/> - <input type="text"/>	

**Figure 276: Create Grading Scale**

Define the name and the value range for the first grade and click [Add new grade]. Now add all further grades. Before saving your settings by clicking the button [Save], define in the header area the grade, above which a participant has passed the exam.

After saving the scale it is shown in the list of scales in the Grading Scale Administration. It can be edited by clicking the pencil icon or deleted by clicking the red cross. You can define as many grading scales as desired.

Grading Management					
Standard Grading Scales					
Name	Description	Number of Grades	Created	Actions	
University Grade		6	22.09.2020 at 10:28:38		
US Grades	A-F	5	01.06.2022 at 10:49:46		

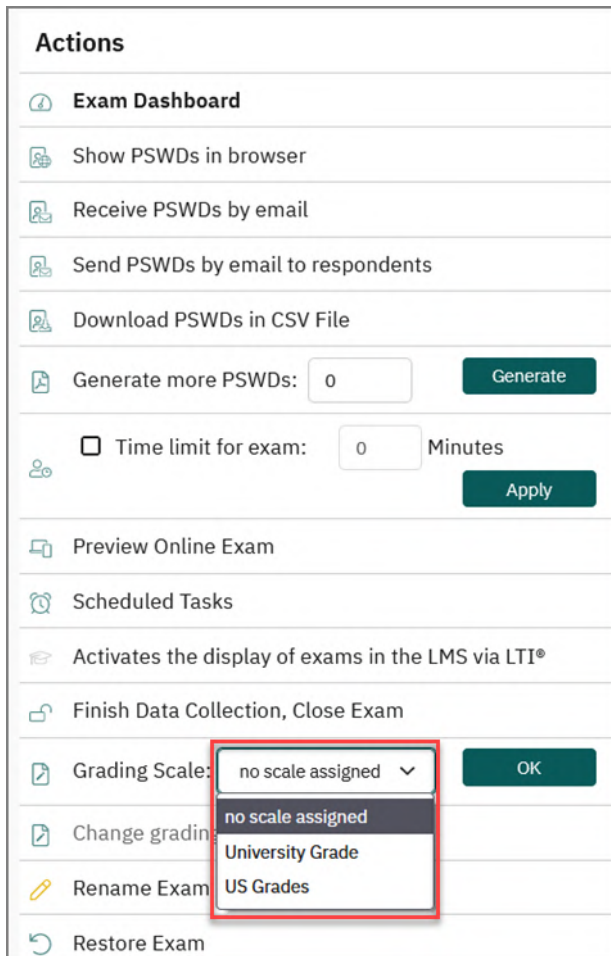
**Figure 277: Grading Scale in the Grading Scale Administration**



### 10.4.2. Assign Grading Scales

In order to use a grading scale for a particular exam, it has to be assigned to the exam. This can be done directly after having created the exam or later after having scanned, verified etc.

To assign a grading scale, click the name of the exam to access the exam details. In the “Actions” section select a grading scale from the drop-down-list “Grading Scale” and click [OK]. The scale now will be used for the evaluation of the exam.



The screenshot shows the 'Actions' section of an exam management interface. It contains several options with icons: 'Exam Dashboard', 'Show PSWDs in browser', 'Receive PSWDs by email', 'Send PSWDs by email to respondents', 'Download PSWDs in CSV File', 'Generate more PSWDs' (with a text input '0' and a 'Generate' button), 'Time limit for exam' (with a checkbox, text input '0', and 'Minutes' label, followed by an 'Apply' button), 'Preview Online Exam', 'Scheduled Tasks', 'Activates the display of exams in the LMS via LTI®', 'Finish Data Collection, Close Exam', 'Grading Scale' (with a dropdown menu showing 'no scale assigned', 'University Grade', and 'US Grades', and an 'OK' button), 'Change grading', 'Rename Exam', and 'Restore Exam'. The 'Grading Scale' dropdown is highlighted with a red box.

**Figure 278: Assign Grading Scale**

The PDF report will now be expanded by the following information:

- In section 3 “Summary Report and Question Analysis”, apart from the distribution of scores also a distribution of grades will be shown in tabular and graphic form. A maximum of 16 grades (0-15) can be displayed next to one another. The decimal digits are omitted when there are more than 10 grades.

### Grade distribution

Grade	Score range	Participants	Percentage
A	9.90 - 11.00 (90.00%)	0	0.00%
B	8.80 - 9.89 (80.00%)	2	50.00%
C	7.70 - 8.79 (70.00%)	0	0.00%
D	6.60 - 7.69 (60.00%)	1	25.00%
F	0.00 - 6.59 (0.00%)	1	25.00%

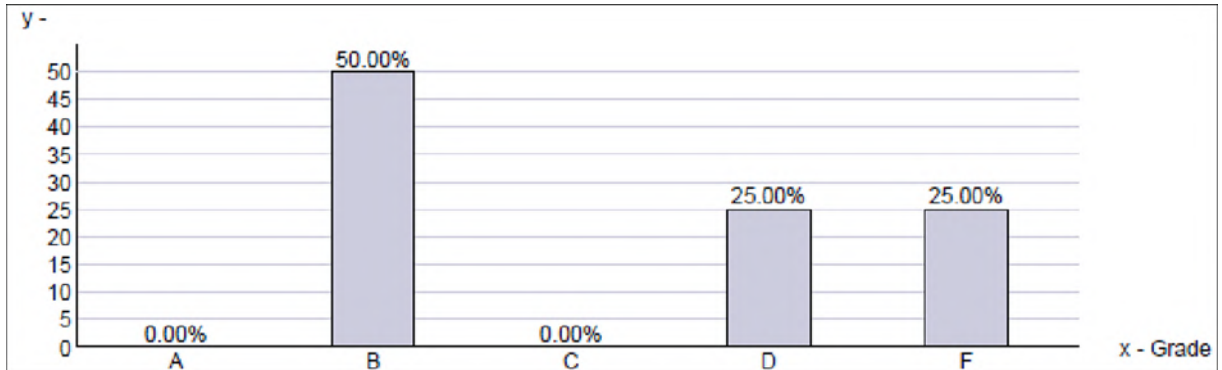


Figure 279: Grade Distribution

- Furthermore, the portion of passed and non-passed exams will be shown in a tabular and graphic view.

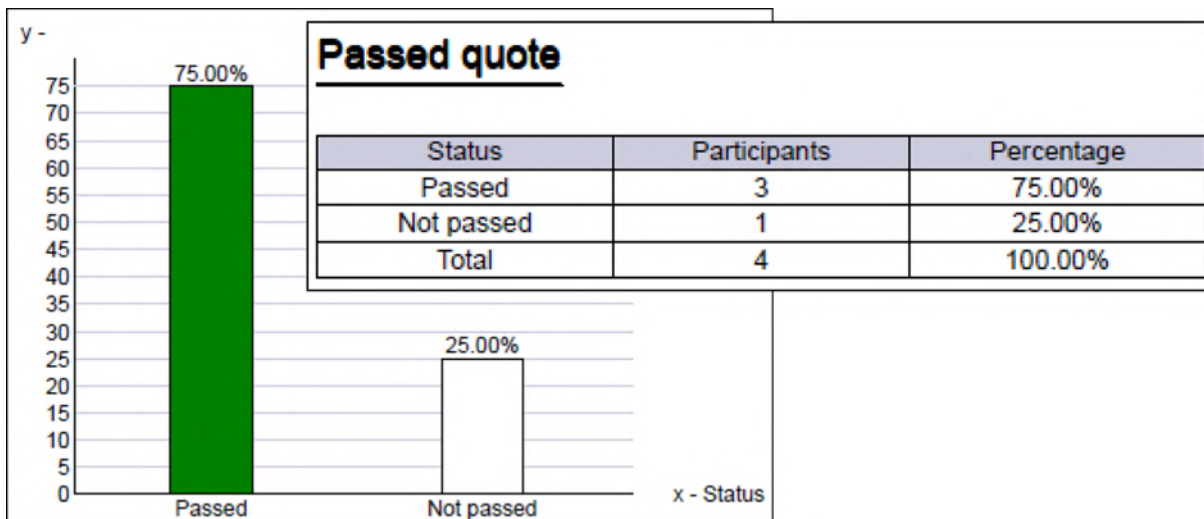


Figure 280: Exams Passed and Exams Not Passed

You will see a summary of the calculated difficulty and correlation for each individual question. For more information on item analysis, see chapter 13.1. "Item Analysis".

### Question analysis

	Question type	Difficulty	Discrimination
Question 1	Single Choice	0.80	-0.61
Question 2	Single Choice	1.00	0.00
Question 3	Multiple Choice	0.73	-0.61
Question 4	Multiple Choice	0.80	-0.56
Question 5	Open Question	1.00	0.00
Question 6	Matching Question	1.00	0.00
Question 7	Kprim	1.00	0.00

**Figure 281: Question Analysis**

- In section 4 the table of scores is expanded by the grade and the information, whether a participant has passed the exam.

#### 4. Table of scores - Geography 101

Participant ID	Score	Grade	Passed
12123120	22	A	Yes
12123121	7	F	No
12123122	18	B	Yes
12123123	8	F	No

**Figure 282: Table of Scores with Grade Information**

### 10.4.3. Adapt Grading Scale (Automatic Adjustment Clause)

If the grade distribution of an exam turns out not as expected and if there is a need to adapt the thresholds for single grades, the grading scale can be adapted for each single exam.

To do this, click the option “Adapt grading scale on the basis of responses”. The details of the grading scale will open. Apart from the relative value range, the corresponding absolute point ranges are shown for each exam too.

You can adapt either the relative or the absolute threshold values. If one of the values is changed, the other one is automatically adapted. By clicking the link “Preview Report” you can open the report and check the effect of your changes.

### Editing grading scale University Grade [Word Basic Kno]

Use this menu to modify the grading scale for exam Word Basic Knowledge by changing the absolute or percentage value ranges. This modification affects only exam Word Basic Knowledge; earlier exams that used the original grading scale will remain unaffected, and you will not be able to assign the modified grading scale to future exams.

#### Grading Scale Details

**Name:**

**Description:**

**Necessary grade to pass the exam:**







Grading						
percental	absolute	Name of Grade	Value range (%)	from Absolute Value		Delete
0.00 %	0	<input type="text" value="A very good"/>	<input type="text" value="90.00"/> - <input type="text" value="100.00"/>	<input type="text" value="72.90"/> - <input type="text" value="81.00"/>		
0.00 %	0	<input type="text" value="B good"/>	<input type="text" value="80.00"/> - <input type="text" value="89.99"/>	<input type="text" value="64.80"/> - <input type="text" value="72.89"/>		
0.00 %	0	<input type="text" value="C satisfactory"/>	<input type="text" value="70.00"/> - <input type="text" value="79.99"/>	<input type="text" value="56.70"/> - <input type="text" value="64.79"/>		
0.00 %	0	<input type="text" value="D sufficient"/>	<input type="text" value="60.00"/> - <input type="text" value="69.99"/>	<input type="text" value="48.60"/> - <input type="text" value="56.69"/>		
0.00 %	0	<input type="text" value="E"/>	<input type="text" value="50.00"/> - <input type="text" value="59.99"/>	<input type="text" value="40.50"/> - <input type="text" value="48.59"/>		
100.00 %	1	<input type="text" value="F failed"/>	<input type="text" value="0.00"/> - <input type="text" value="49.99"/>	<input type="text" value="0.00"/> - <input type="text" value="40.49"/>		
		<input type="text"/>	<input type="text"/> -		<input type="button" value="Add new grade"/>	

**Result analysis**

Percentage pass rate

**Figure 283: Adapt Grading Scale**

Click [Save] to finish editing the scale. The adapted scale is now displayed in the Grading Scale administration. It can be edited again at a later date, if necessary.

Grading Management				
Standard Grading Scales				
Name	Description	Number of Grades	Created	Actions
University Grade		6	22.09.2020 at 10:28:38	 
US Grades	A-F	5	01.06.2022 at 10:49:46	 
<a href="#">Add new grading scale</a>				
Custom Grading Scales				
Name	Description	Number of Grades	Created	Actions
University Grade [Demo Exam Subt]		6	19.11.2020 at 14:30:18	
University Grade [Demo Subtesting]		6	27.10.2020 at 16:09:13	

**Figure 284: Adapted Grading Scale in the Grading Scale Administration**

**Note:**

If a grading key is assigned to several exams, changing the grading key will affect exam results for all those exams.

An automatic adjustment clause can also be used to adjust the grading key. With this, the exam results can be adjusted while taking into account the average results achieved in the exam. The automatic adjustment clause allows a certain percentage value to be deducted from the average result. If the calculated value lies above the pass mark specified beforehand in the grading key, then it does not change. If however the value lies below the pass mark specified beforehand, then it is adjusted to the calculated value.

In order to use the automatic adjustment clause in the grading key, evaexam provides the option of calculating the average grade achieved in the exam. The calculation basis can be limited, e.g., to first participants in the exam. For this, the corresponding information, for example, "First participation" has to be saved when importing the participants (see chapter 5.9.2. "Type of Participant Capturing: Participant Import").

Grading					
percental	absolute	Name of Grade	Value range (%)	from Absolute Value	Delete
0.00 %	0	A very good	90.00 - 100.00	28.80 - 32.00	
0.00 %	0	B good	80.00 - 89.99	25.60 - 28.79	
33.33 %	1	C satisfactory	70.00 - 79.99	22.40 - 25.59	
0.00 %	0	D sufficient	60.00 - 69.99	19.20 - 22.39	
33.33 %	1	E	50.00 - 59.99	16.00 - 19.19	
33.33 %	1	F failed	0.00 - 49.99	0.00 - 15.99	

[Add new grade](#)

---

**Result analysis**

Percentage pass rate: 33.33 %

Average result: 75.00 % / 24.00 Points

Calculation base: Selected examinees [Change...](#)

View Report

[Save](#) [Back](#) [Delete](#)

**Figure 285: Adjusting the calculation basis**

Because the formula and calculation of the automatic adjustment clause are handled very differently, the actual calculation takes place outside of evaexam. The newly calculated pass mark is then entered for adjusting the grading key if necessary.

*Example:*

*The pass mark is 60%*

*The average result of the test is 79% and an automatic adjustment clause of 22% is specified in the examination regulations:*

*The percentage deduction (22%) of the average value (79%) = 17.38%*

*Hence:*

*Average value (79%) minus automatic adjustment clause deduction (17.38%) = 61.62%*

*61.62 is greater than 60%: The automatic adjustment clause does not take effect; the pass mark stays at 60%.*

*However, if the average value is 69%, then the percentage deduction (22%) from the average value (69%) = 15.18*

*Hence:*

*Average value (69%) minus automatic adjustment clause (15.18%) = 53.82%*

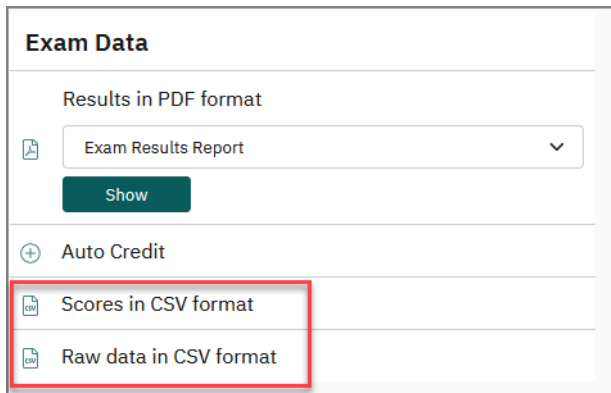
*53.82 is less than 60%: The automatic adjustment clause takes effect; the pass mark is adjusted to 53.82%.*



*Please note that the formula for the automatic adjustment clause could be significantly different in concrete situations at your institute.*



## 10.5. CSV Export format

You can evaluate exam results using either a score report or a raw data export (CSV file), both available in the Exam Details.





**Exam Data**


Results in PDF format

 Exam Results Report 

**Show**

 Auto Credit

 Scores in CSV format

 Raw data in CSV format

**Figure 286: CSV Export**

- [CSV Score Export](#)
- [CSV Raw Data Export](#)

### 10.5.1. CSV Score Export

The CSV score export file consists of a header line and, per exam candidate, a further line with the corresponding data. The data sets are thereby sorted by the examinee-ID.

In case of exams without participant import, the examinee-ID is shown in the first column. The other columns show the point scores given for the individual questions, and there is a summarized point score in the final column. If you have defined a grading scale for the exam, the grade will also be included for each participant. The header line displays the question texts. For exams in the subtest procedure, the total score per question group is also exported.

	A	B	C	D	E	F	G	H	I	J	K
1	Examinee-ID	Serial Numb	How many p	Hamburg is a	Which of the	Which of the	Name three	Assign the fc	Please name	Grade	Total Score
2	12987654	121	1	1	3	2	3	3	7	B	20
3	12888777	122	1	0	2	0	3	0	7	D	13
4	23456454	123	1	1	3	2	3	3	9	A	22

**Figure 287: CSV score export for exams without participant import**

If you have imported participant data for your exam, then additional data of your exam participants will be exported. At the end of the line after the scores, the grade (if defined) and the sum of scores, the following participant information is displayed: form of address, academic title, first name, last name, email address and the content of the first three custom user fields (if defined):



K	L	M	N	O	P	Q	R
Form of Address	Title	First Name	Last name	Email	Custom 1	Custom 2	Custom 3
Ms		Nicola	Doe	n.doe@example.com	BA	test	
Mr.	Dr.	Axel	Miller	a.miller@example.com	BA	retest	
Mrs.	Dr.	Betty	Meier	b.meier@example.com	MA	test	
Mrs.		Conny	Master	c.master@example.com	BA	retest	
Mrs.		Doris	Smith	d.smith@example.com	MA	test	
Mr.		Ernest	Sneider	e.sneider@example.com	MA	test	

**Figure 288: CSV score export for exams with participant import**

In the case of online exams with time limitation the CSV file additionally shows the time a participant has needed to fill in the form. The time is measured from the moment the PSWD has been entered until the moment the participant submits the form. Please note, that the time stated in the CSV file can slightly exceed the time limitation set for the exam, as time measuring starts right after the PSWD has been entered and not when the participant confirms the examinee-ID.

### 10.5.2. CSV Raw Data Export

In the header, you will find the Exam ID, the printing serial number, and the individual question texts. The columns below display the respective values read. There are no evaluated results displayed here; that is, there is no number of points visible. The report only shows which boxes the participant ticked and which text they entered for open questions.

On paper exams, the place holder [IMAGE] is used for answers to open questions, because for open questions on paper exams the program saves image files of the answer boxes, and CSV files cannot display images.

	A	B	C	D	E	F	G	H	I	J
1	Examinee ID	Serial Numb	Antarctica is	India belong	India	Sweden	Finland	Germany	Great Britain	Peru
2	12123120	1	1	2	1	0	0	0	0	
3	12123121	2	1	1	1	0	0	0	0	
4	12123122	3	1	1	1	0	0	0	0	
5	12123123	4	1	1	1	0	0	0	0	

**Figure 289: CSV Raw Data**

## 10.6. Auto Credit

With the help of the function “Auto Credit” which can be found in the exam details, section “Exam Data”, you can award full credit for a question regardless of the participants answers. This could, for example, be necessary, if a question should be excluded from scoring due to incorrect formulation or ambiguous answer options.

**Exam Data**

Results in PDF format

Exam Results Report

Show

+

Auto Credit

Scores in CSV format

Raw data in CSV format

Figure 290: Auto Credit

After having clicked on “Auto Credit” an overview of the questions on the exam sheet is displayed, indicating the difficulty, correlation and maximum score for each question.

Auto Credit				
Exam: Sample exam				
Auto credit is an override that awards full credit regardless of the student answer. Questions that have already been corrected by this function are highlighted in blue.				
Question	Difficulty	Discrimination	Maximum Score	
<b>Around EvaExam</b>				
ATP: Please fill in the missing elements and write the complete name of ATP	0.70	1.00	5	<input type="checkbox"/>
Berlin is the capital of Germany	0.50	1.00	1	<input type="checkbox"/>
Which of the following cities are in Europe?	1.00	0.00	2	<input type="checkbox"/>
Describe at least three main sights of the city of Hamburg.	0.25	1.00	10	<input type="checkbox"/>
Which statement is correct?	0.25	1.00	2	<input type="checkbox"/>
Which import types are available in EvaSys?	0.75	1.00	2	<input type="checkbox"/>
There are three options to display an online survey. What are they?	0.00	0.00	1	<input type="checkbox"/>
At which point in time is it possible to change the amount of participants without any problems when calculating the response rate?	0.00	0.00	3	<input type="checkbox"/>
Which files have to be included in backups?	0.00	0.00	2	<input type="checkbox"/>
Where can you set a reminder for surveys?	0.00	0.00	1	<input type="checkbox"/>
Make the capital of Germany	0.00	0.00	1	<input type="checkbox"/>

Figure 291: Question overview

Select the question you want to award full credit for and click [Apply].

**Note:**

Please note, that when using the auto credit function, the original data in the data base is overwritten. The original data cannot be restored!

## 10.7. Restore Exam


















If you have scanned some test data for an exam, or if there have been issues during processing of the exam sheets, you can restore the exam and thereby remove the scanned data from the exam. The exam itself remains in the system so that you can still process data at a later point of time.

To restore, click the arrow icon in the Actions column of the exam list:

Exams in Folder "Geography"													
Type	Name	Details	Status	Template	Created	Processed	Sheets	# Forms	Original Scans	Report	Export	Actions	Request
	Climate change and its impact on agriculture		In progress	MyQuestionnaire	25.08.2020	--	15	0					0
	Renewable natural resources		In progress	SampleEx01	25.08.2020	--	71	0					0
	Sustainable Fisheries and Farming Techniques		Evaluated	SampleEx01	25.08.2020	25.08.2020	35	1					
	Demo Exam Subtesting		Evaluated	Demo-Subtesting [+1]	19.11.2020	20.11.2020	6	3					

**Figure 292: Restore Exam - Exam List**

Or access the exam details and click "Restore Exam":

Actions	
	Exam Dashboard
	Show PSWDs in browser
	Receive PSWDs by email
	Send PSWDs by email to respondents
	Download PSWDs in CSV File
	Generate more PSWDs: <input type="text" value="0"/> <span>Generate</span>
	<input type="checkbox"/> Time limit for exam: <input type="text" value="0"/> Minutes <span>Apply</span>
	Preview Online Exam
	Scheduled Tasks
	Deactivates display of the exam in the LMS via LTI®
	Finish Data Collection, Close Exam
	Grading Scale: <input type="text" value="no scale assigned"/> <span>OK</span>
	Change grading scale for the exam
	Rename Exam
	Restore Exam
	Move Exam
	Assign rights for shared scoring

**Figure 293: Restore Exam - Exam Details**

The exam will be set back to the status “In Progress”.

Please note that the data is completely removed from the database and that this process cannot be undone.

## 11. Subtesting Procedure

This procedure allows you to set up subtests with individual evaluations within an overall exam. In evaexam, the individual question groups of your questionnaire serve as the basis for the individual exam parts.

## 11.1. Prepare Exam Sheet

If you want to carry out an exam based on the subtesting procedure, first it has to be specified when creating an exam sheet. To do this, select the option "Evaluate by subtests" in the "Evaluation" section of the form wizard:

Figure 294: Option „Evaluate by subtests“

In the next step, create your exam sheet. All editor functions are available to you as usual. Please note that a question group represents a subtest. This means that there must be at least two questions groups on your exam sheet so that an evaluation according to subtests can be made. If this is not the case, the exam is evaluated as a single exam.

## 11.2. Create the Exam

To create an exam in the subtesting procedure, please proceed as described in chapter 5.1. "Create Exam - Folder". There is only a difference in the section "Create Versions": The last option „Scramble the order of questions regardless of their question group affiliation" is not available, because an evaluation on question group level would no longer be possible.

The other options for creating your paper or online exam can be used as usual.

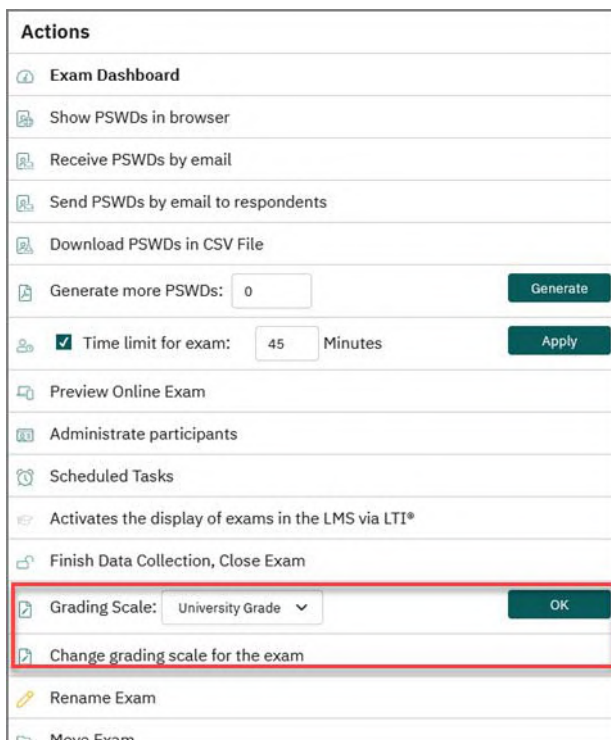
### Note:

For paper exams where only answer sheets are used, the subtest procedure is not supported.

## 11.3. Adjustment of the Grading Scale in the Subtesting Procedure

Once the exam has been completed, the system first determines the score achieved per question group. By adjusting the grading scale used, you also can determine whether a certain number of scores or a percentage of scores must be achieved for one or more subtests in order to pass them. Further you can define whether a specific subtest or a certain number of subtests must be passed in order to pass the overall exam.

To do this, switch to the details of the exam and first select a grading scale in the "Actions" section. If you have not yet added grading scales to your account, please follow the steps in chapter 10.4. "Using Grading Scales".



Actions	
Exam Dashboard	
Show PSWDs in browser	
Receive PSWDs by email	
Send PSWDs by email to respondents	
Download PSWDs in CSV File	
Generate more PSWDs: 0	Generate
<input checked="" type="checkbox"/> Time limit for exam: 45 Minutes	Apply
Preview Online Exam	
Administrate participants	
Scheduled Tasks	
Activates the display of exams in the LMS via LTI*	
Finish Data Collection, Close Exam	
Grading Scale: University Grade	OK
Change grading scale for the exam	
Rename Exam	
Move Exam	

**Figure 295: Add and adapt grading scale**

After you have confirmed the grading scale with the [Ok] button, you can edit it by clicking on the option "Change grading scale for the exam".

**Editing grading scale University Grade [Botany]**

Use this menu to modify the grading scale for exam Botany by changing the absolute or percentage value ranges. This modification affects only exam Botany; earlier exams that used the original grading scale will remain unaffected, and you will not be able to assign the modified grading scale to future exams.

**Grading Scale Details**

Name:

Description:

Necessary grade to pass the exam:

Number of subtests to be passed:

Subtests	Achievable score	Minimum result in %	from Absolute Value	Subtest of the exam must be passed
First Group	4.00	<input type="text" value="75"/>	<input type="text" value="3"/> - 4.00	<input type="checkbox"/>
Second Group	18.00	<input type="text" value="61.11"/>	<input type="text" value="11"/> - 18.00	<input type="checkbox"/>
Third Group	10.00	<input type="text" value="70"/>	<input type="text" value="7"/> - 10.00	<input checked="" type="checkbox"/>

**Figure 296: Editing grading scale**

In the section "Grading Scale Details" you can change the name, add an optional description and determine the grade at which the overall exam is considered passed. In addition, you can determine whether the participant must pass a certain number of subtests in order to successfully complete the overall exam. You can define whether only the number specified here is to be fulfilled or you can also specify that certain parts of the examination must be passed. You can define these specifications in the following section.

In the following section you can specify the required range of scores to pass this subtest - absolute or percentage - and also determine which of the subtests must be passed.

The adapted grading scale is added to the list of grading scales. However, it is not possible to assign it to other exams. You can, however, edit it at any time at a later date:












Grading Management				
Standard Grading Scales				
Name	Description	Number of Grades	Created	Actions
University Grade		6	22.09.2020 at 10:28:38	 
US Grades	A-F	5	01.06.2022 at 10:49:46	 
<a href="#">Add new grading scale</a>				
Custom Grading Scales				
Name	Description	Number of Grades	Created	Actions
University Grade [Botany]		6	01.06.2022 at 11:21:32	
University Grade [Demo Exam Subt]		6	19.11.2020 at 14:30:18	
University Grade [Demo Subtesting]		6	27.10.2020 at 16:09:13	
University Grade [English Literature]		6	29.10.2020 at 17:27:29	
University Grade [Word Basic Kno]		6	01.06.2022 at 10:55:52	

Figure 297: List of custom grading scales

## 11.4. Exam Results Report in the Subtesting Procedure

If you have carried out an exam in the subtesting procedure, additional evaluation elements are added to the overall report.

In addition to the evaluation of the individual questions, you will also receive a tabular overview in the "Exam report" section, which shows how many scores per question group were achieved by the respective examinee.

2. Exam report					
Participant ID	Questionnaire	Question group 1	Question group 2	Question group 3	Total
562211	3	2	6	5	13
645657	1	4	10	5	19
991129	2	2	8	8	18
Average		2.7	8	6	16.7

Participant ID	Questionnaire	Question 1.1	Question 1.2	Question 1.3	Question 2.1	Question 2.2	Question 2.3	Question 2.4	Question 2.5	Question 2.6	Question 2.7	Question 2.8	Question 2.9	Question 3.1	Question 3.2	Question 3.3	Question 3.4	Question 3.5	Total
562211	3	1	1	0	0	0	0	0	2	2	1	0	1	2	1	0	0	2	13
645657	1	1	1	2	1	0	0	1	2	3	0	0	3	1	2	0	0	2	19
991129	2	1	0	1	1	0	0	1	1	3	0	0	2	2	2	2	0	2	18
Average		1	0.7	1	0.7	0	0	0.7	1.7	2.7	0.3	0	2	1.7	1.7	0.7	0	2	16.7

Figure 298: Exam report in subtesting procedure

In the section "Summary report + Question Analysis" you will find an overview of the distribution of scores per question group. This shows how many points can be achieved in the respective question group in total, how many points were achieved on average by the examinee, how many scores were awarded at maximum and how many at minimum. If an adapted grading scale was used for the exam, the table shows how many scores must be achieved for the respective question group in order to pass it.

3. Summary report + Question analysis					
<b>Score distribution</b>					
Question group	Achievable score	Average score	Max. score	Min. score	Passing mark
Question group 1	4.00	1.75	2.00	1.50	3.00
Question group 2	2.50	1.75	2.00	1.50	2.00
Question group 3	13.00	9.00	9.00	9.00	7.00

Figure 299: Tabular presentation of the score distribution in the subtesting procedure

In the case of an assigned and adapted grading scale, the report is supplemented by the section "Passed quote". This section provides an overview in tabular form of how many candidates have passed or failed the respective subtest. The following screenshot shows that two participants have passed the second subtest and three examinees have passed the third subtest. All three participants failed the first subtest.

<b>Passed quote</b>				
Question group	Passed	Percentage	Not passed	Percentage
Question group 1	0	0.00%	3	100.00%
Question group 2	2	66.67%	1	33.33%
Question group 3	3	100.00%	0	0.00%

Status	Participants	Percentage
Passed	2	66.67%
Not passed	1	33.33%
Total	3	100.00%

Figure 300: Display of the pass rate in the report

## 11.5. Student Results Report in the Subtesting Procedure

The student results report shows an overview containing the achieved score per question group, the maximum number of points achievable for each question group as well as the total score. Both the total score and the points achieved per question group are presented as absolute and relative values. If the examiner has specified that examinees must achieve certain points or percentages or that certain parts of the exam must be passed, this is indicated in the column "Passed":

Exam: English Literature					
Instructor: Donna Harwood					
Participant ID: 645367					
	Score	Max. score	Percentage	Passed	Grade
Question group 1	2.5	4	62.50%	No	
Question group 2	2	2.5	80.00%	Yes	
Question group 3	12	13	92.31%	Yes	
<b>Total</b>	<b>16.5</b>	<b>19.5</b>	<b>84.62%</b>	<b>Yes</b>	<b>B good</b>

Figure 301: Student results report - Overview on question groups

## 12. Display of Exams in Learning Management Systems

The so-called LTI® interface allows the connection of Learning Management Systems (LMS) such as Moodle to evaexam. Exam related content, e.g. links to online exams or participant reports for download, can be made available to students. In the instructor view, examiners can view information on the status and response of an exam.













Furthermore, it is possible to let examiners freely decide whether an exam should be displayed in the connected Learning Management System or not. This permission must be granted first centrally by the administrator or by the subunit administrator.

If your administrator or subunit administrator has enabled the display of exam content, examiners can activate the display of the exam in the LMS by clicking on the green doctor hat icon in the "Actions" column in the exam overview. Clicking the icon again deactivates the display.

Exams in Folder "Geography"												
Type	Name	Details	Status	Template	Created	Processed	Sheets	# Forms	Original Scans	Report	Export	Actions
	Climate change and its impact on agriculture		In progress	MyQuestionnaire	25.08.2020	--	15	0				
	Renewable natural resources		In progress	SampleEx01	25.08.2020	--	71	0				
	Sustainable Fisheries and Farming Techniques		Evaluated	SampleEx01	25.08.2020	25.08.2020	35	1				

Figure 302: Activate display of exams in the LMS in the exam list

This option can be found in the "Actions" section of the exams folder overview, as well as in the details of an exam:

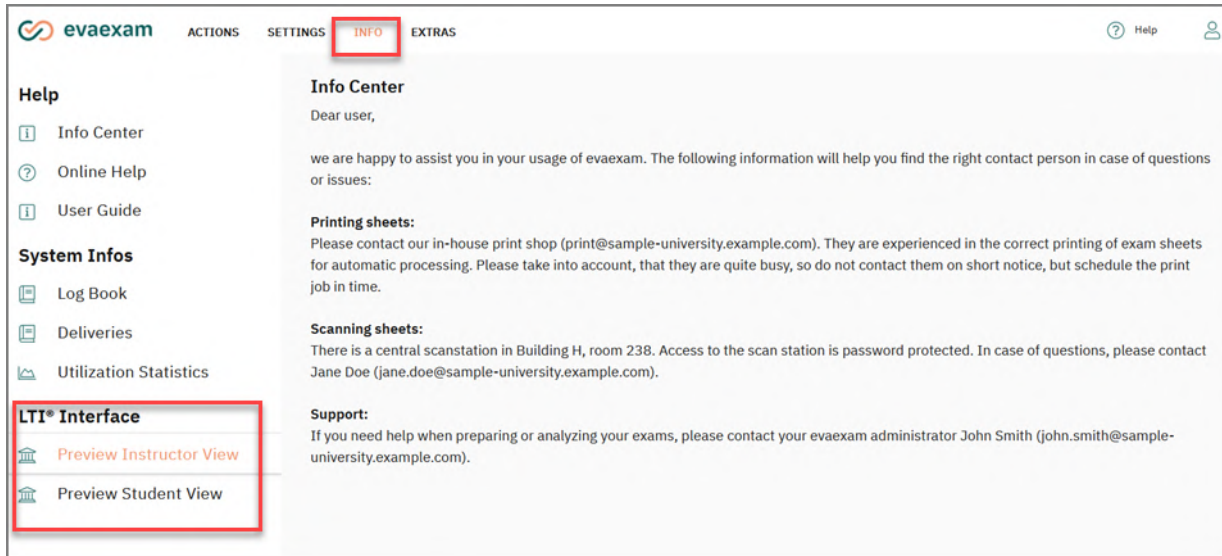
Actions	
	Exam Dashboard
	Show PSWDs in browser
	Receive PSWDs by email
	Send PSWDs by email to respondents
	Download PSWDs in CSV File
	Generate more PSWDs: <input type="text" value="0"/>
	<input type="checkbox"/> Time limit for exam: <input type="text" value="0"/> Minutes
	Preview Online Exam
	Administrate participants
	Scheduled Tasks
	Activates the display of exams in the LMS via LTI®
	Finish Data Collection, Close Exam

**Figure 303: Activate display of exams in LMS in the exam details**

Depending on the settings made by the administrator, content from online exams, online quizzes and online practices as well as from paper exams can be displayed in the LMS.

### Preview of the display in the LMS

A preview function for the display in the student and instructor view allows you to see how the content will be presented in the LMS. Examiners can access the preview function in the main menu "Info / LTI® Interface":



**Figure 304: Access to the preview**

### Note:

The LTI® integration has to be licenced properly. If you have questions about the license, please contact your evaexam or IT administrator.









As shown in the following figure, the examiner view includes information on the response rate of current exams:



**Figure 305: Preview Instructor View**

Students can be provided with individual accesses to online exams. They also receive an overview on which exams they have already taken. If configured by the administrator, students can also view paper exam content in their account. In addition to the status of the paper exam, it is possible to provide the student report including the original scans.



My Exam Dashboard		evaexam
Modern Theoretical Physics	 Dr. John Doe	Result available 
Moral Reasoning	 Dr. John Doe	
Introduction to Basic Electronics	 Prof. Rick Roe	Submitted 
Linear Algebra	 Jane Doe	

**Figure 306: Preview Student View**

To know which content is displayed in the LMS, please contact your evaexam administrator.

## 13. Further Options

There are two additional functions which can help you to manage and analyze your item pool: Item analysis and Question Library Management. Both will be explained in the following chapters.

- [Item Analysis](#)
- [Question Library](#)

### 13.1. Item Analysis

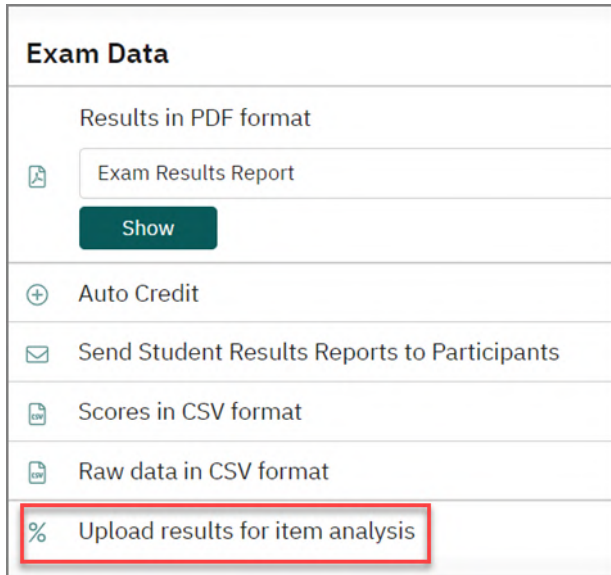
In addition to a degree of difficulty determined by yourself, the program can calculate difficulty values and correlation for questions using existing exams and deposit these values in the question library. It can do this for Single Choice, Multiple Choice and Matching questions.







First, you have to activate the item analysis. If item analysis is not activated in your system, ask your evaexam administrator to activate the function. The administrator can choose, on a global level, whether exam results are to be used automatically for item analysis of questions in the question library, or whether they must be manually selected. In the case described below, they are selected manually.

If data is available for an exam which uses a questionnaire with questions selected from the question library, then the results of the exam can be used for item analysis calculation.

In the Exam Details, click “Release results for item analysis”. This allows the program to add information from the exam and use it to calculate the degree of difficulty and the index of discrimination (correlation value 'point-biserial correlation coefficient') for relevant questions in the question library.

If the exam is reset, the data is once again removed from the calculation.

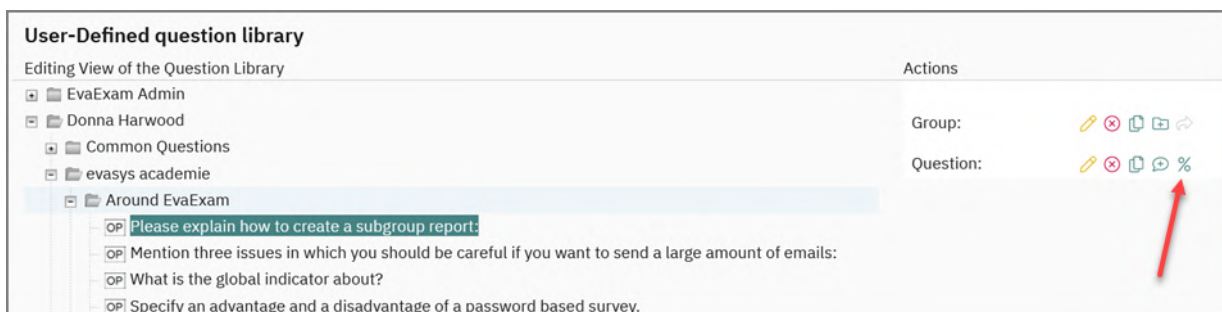











Exam Data	
Results in PDF format	
	Exam Results Report
<button>Show</button>	
	Auto Credit
	Send Student Results Reports to Participants
	Scores in CSV format
	Raw data in CSV format
	Upload results for item analysis

**Figure 307: Release Results for Item Analysis**

When you delete an exam, you can choose whether the data collected will continue to be used for these calculations, or whether the data should be deleted from the calculations.

If results for item analysis are assigned to a question, then you can view a summary of the calculated results by clicking on the percentage symbol in the question library administration.



User-Defined question library	
Editing View of the Question Library	
<div><div>EvaExam Admin</div><div>Donna Harwood</div><div>Common Questions</div><div>evasys academie</div><div>Around EvaExam</div><div><div>Please explain how to create a subgroup report:</div><div>Mention three issues in which you should be careful if you want to send a large amount of emails:</div><div>What is the global indicator about?</div><div>Specify an advantage and a disadvantage of a password based survey.</div></div></div>	<div>Actions</div> <div>Group:    </div> <div>Question:     </div>

**Figure 308: Opening Item Analysis**

You will see a summary of the calculated values in the window that opens.



Item Analysis

Item Analysis for Selected Question

*Is it possible to create one report for two surveys, even if one was an online survey and the other a paper based survey?*

	Last	Total
Number of students who answered the question:	0	0
Difficulty (Percentage of total group with correct responses):	0	0
Percentage of the upper 27% of the group with correct responses:	0	0
Percentage of the lower 27% of the group with correct responses:	0	0
Discrimination Index (Point-Biserial Correlation Coefficient):	0	0

Response Frequencies (Percentage of total group)

	Last	Total
Yes, no problem for the report creator	-	-

Close

**Figure 309: Item Analysis**

For further information on the calculation of the index of discrimination in the item analysis please refer to chapter 14.1. "Discrimination"

When pasting new questions from the question library, you can thus filter questions not just according to their assigned degree of difficulty, but also according to the degree of difficulty and the correlation calculated for the library questions.

The screenshot shows the 'Question Library' tab in the 'Editor Control' window. Under the 'Filters' section, the 'Filter:' dropdown is set to 'Level of Discrimination (calculated)'. Below this is a green '+' button. A slider for 'Level of Discrimination (calculated):' is shown with markers for 'Low', 'Medium', and 'High'. The 'Apply' and 'Undo' buttons are at the bottom right of the filter section. Below the filter section, there is explanatory text: 'In paper view, library groups and questions can be added to the form via drag & drop. In paper and online view they can be added by double-click.' Below this text are two buttons: 'Update Library' (with a refresh icon) and 'Random selection of questions' (with a shuffle icon). At the bottom, a tree view shows the library structure: 'EvaExam Admin' (expanded), 'Algebra 101', and 'Donna Harwood'.

**Figure 310: Item Analysis: Filtering**

The calculated values are classified into three categories (easy/medium/difficult resp. low/medium/high) according to the following criteria:

### Level of Difficulty

	Multiple Choice / Kprim	Single Choice/ True-False	Matching
Easy	75-100%	80-100%	75-100%
Medium	60-75%	65-80%	50-75%
Difficult	>60%	>65%	>50%

**Table 4: Thresholds for Level of Difficulty**

**Level of Discrimination**

	Multiple Choice/ Kprim	Single Choice /True-False	Matching
High	0,3-1,0	0,2-1,0	0,3-1,0
Medium	0,15-0,3	0,1-0,2	0,15-0,3
Low	>0,15	>0,1	>0,15

**Table 5: Thresholds for Level of Discrimination**

## 13.2. Question Library

Each examiner account in evaexam has its own question library in which examiners can administer questions for use in further exam sheets.

### Hint:

If required, the question library can be shared with other examiners.

To do this, the evaexam administrator has to adjust the option “Share Question Library” in the menu “System Settings/evaexam Settings/Exam”. The administrator can define at which level the examiners can share the content of their question library with other examiners (same subunit / system-wide). In the examiner account, only users of the defined level may share library content. If the setting is deactivated, the question library content cannot be shared at all.

The library can be accessed in two ways:

- On the one hand, it is available as a separate menu in the editor control of the VividForms Editor. Thereby questions can be taken directly from an exam sheet and added to the library or can be integrated into an exam sheet by taking it from the library (see above chapter 3.11. “Using the Question Library”).
- On the other hand there is a menu “Question Library” in the left side menu in the section “Actions”. Here the central administration interface of the library can be opened.

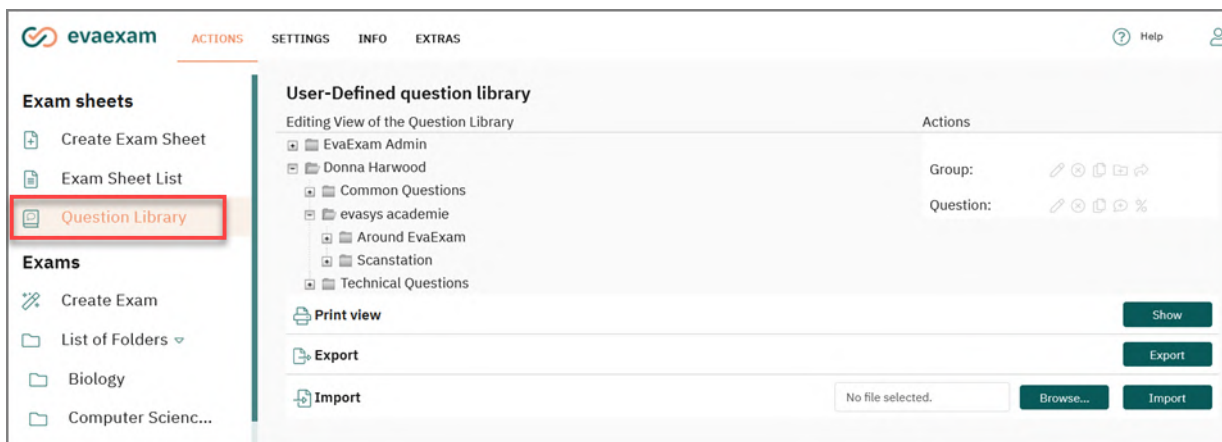
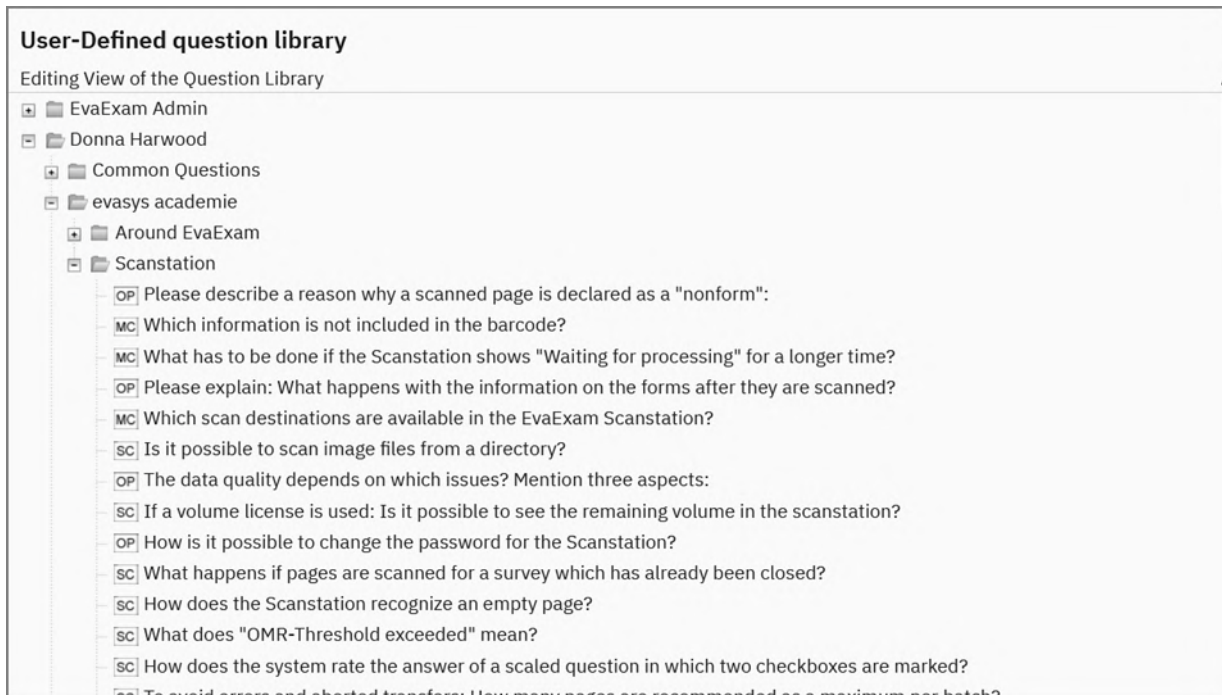


Figure 311: Question Library in the Main Menu

In the editing view, the current content of the question library is displayed in the form of a tree structure. The basic structure consists of three levels:

- User, which means the “Owner” of the question groups/questions (administrator, subunit administrator or active user)
- Question Groups
- Questions

With the help of the question groups you can build up a hierarchical folder structure with up to ten levels. This way also complex item pools can be systematically displayed and managed. The figure below shows an exemplary structure of an item pool:



**Figure 312: Sample Item Pool**

By clicking on a user/a question group or on the open/close symbol in front of the entry, the entry is opened and the elements contained therein are displayed. By clicking on a question group or question, the corresponding properties and available actions are displayed on the right sight.

In the upper area "Actions" it is defined whether the question group or question is a public or non-public one. Public questions and question groups are available to all users (administrator, examiners), non-public only to the relevant owner of the question/group. Only the administrator can add public questions to the library. Questions added by an examiner always have the status "non-public", which means they cannot be seen by other examiners. However, the evaexam administrator can allow the individual sharing of the question library with other examiners (menu "System Settings/evaexam Settings/Exam/Share Question Library" - see section "Hint:", page 262).

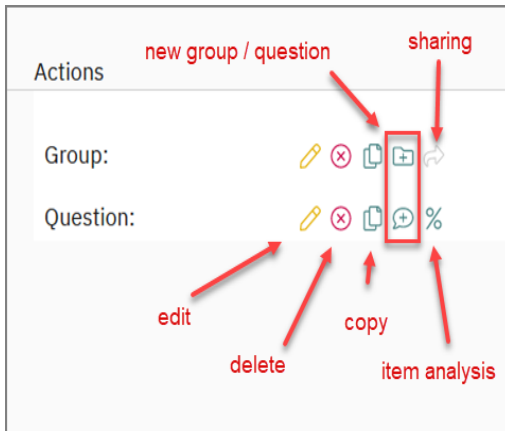
**Note:**

The option "public" in the area "Actions" is only displayed if the evaexam administrator has deactivated the possibility to share the question library (menu "System Settings/evaexam Settings/Exam/Share Question Library" - see section "Hint:", page 262).

For each question group and question, four to five actions can be undertaken:

- Edit: enables the retrospective editing of a question/group
- Delete: deletes the question/group from the library

- Copy: copies a question/group
- New Group/Question: creates a new group or question in the library
- Group: define shares (only if activated by the evaexam administrator - see section "Hint:", page 262).
- Question: Item Analysis - shows the calculation of the item analysis



**Figure 313: Question Library - Actions**

### 13.2.1. Add Question Groups

To add a question group to the library, click the icon “New Group”. The question wizard, which is familiar from the VividForms Editor, will open.

**Figure 314: Add Question group**

Enter the name of the group and, if desired, select a parent group from the groups already existing in the library. The group will then be created as a subgroup. If you do not select a parent group, the group will be created on the first level. Click the button [Apply]. The group will be shown in the library.

**Note:**

Please note that parent groups may not contain questions. As soon as a question group contains questions it can not be used as parent group.

The option “public” defines the availability of the question group. Public question groups are available to all users, non-public only to the respective owner of this question group.

**Note:**

Only the administrator can add public questions to the library. Questions added by an examiner always have the status “non-public”, which means they cannot be seen by other examiners. However, the evaexam administrator can allow the individual sharing of the question library with other examiners (menu “System Settings/evaexam Settings/Exam/Share Question Library”). If activated, the examiner can now define which examiner can use his/her question library (see the following chapter 13.2.2. “Share Question Groups”).



### 13.2.2. Share Question Groups

To share a question group including all questions with another examiner the relevant question group has to be marked first. The release can be defined via the green icon in the area “Actions”. The window “Define shares” opens automatically. Here, individual, several or all examiners can be granted a release. You can only share your own question groups. The changes will be saved via [OK].

Via the green icon the shares can be viewed, edited or revoked at any time.

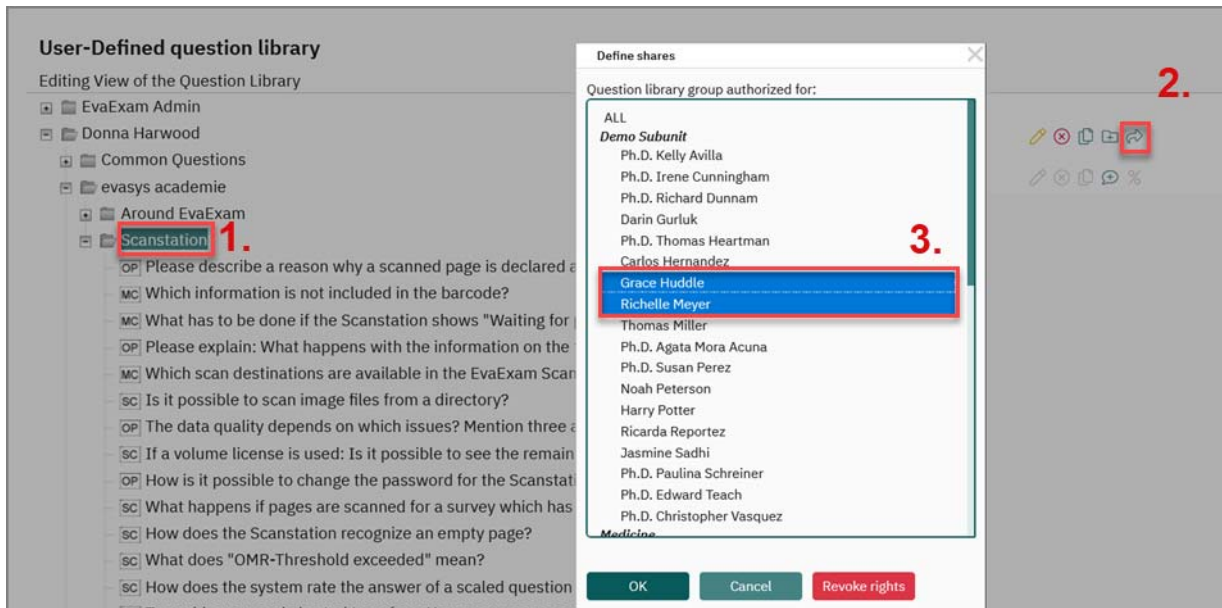


Figure 315: Define shares

#### Note:

If a user has got access to a parent group, the subgroups will automatically be shared as well. If necessary, the release of individual subgroups can be revoked. To do this, the shares of the corresponding subgroup have to be edited again.

If a user has got access to a subgroup, the parent group will be automatically shown in his/her account. Consequently, the structure of the origin question library is shown correctly. Nevertheless, the access to the content (questions) is only granted for the shared subgroup.

#### Hint:

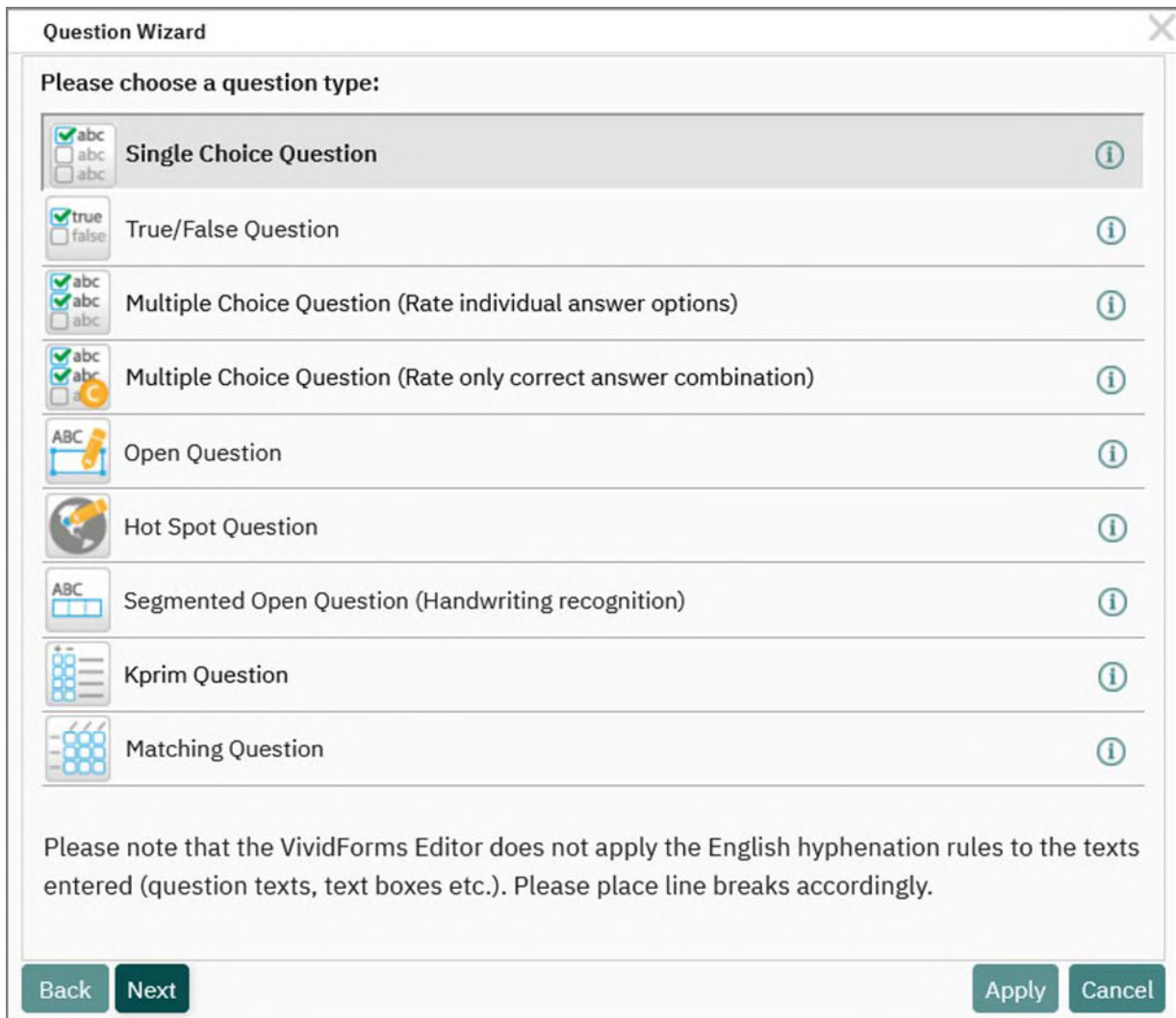
The evaexam administrator sees all question groups including all questions

- if the option “System-wide” is selected in the menu “System Settings/evaexam Settings/Exam/Share Question Library” and
- if the release was defined for “ALL” (see option “ALL” in Figure 315: Define shares).

### 13.2.3. Add Questions

To add a question, click the icon “New Question”.

Select the desired question type, enter the question text and, if desired, assign a level of difficulty. In the last step of the wizard, enter the answer options together with their scores and click [Apply]. The question will now be shown in the library.



The screenshot shows a 'Question Wizard' dialog box with a close button (X) in the top right corner. The main heading is 'Please choose a question type:'. Below this is a list of question types, each with a small icon and an information icon (i) on the right:

- Single Choice Question**: Icon shows three radio buttons labeled 'abc'.
- True/False Question**: Icon shows two checkboxes labeled 'true' and 'false'.
- Multiple Choice Question (Rate individual answer options)**: Icon shows three checkboxes labeled 'abc'.
- Multiple Choice Question (Rate only correct answer combination)**: Icon shows three checkboxes labeled 'abc' with a yellow circle around the first one.
- Open Question**: Icon shows a text box with a yellow pencil.
- Hot Spot Question**: Icon shows a globe with a yellow pencil.
- Segmented Open Question (Handwriting recognition)**: Icon shows a text box with 'ABC' and a yellow pencil.
- Kprim Question**: Icon shows a list of items with checkboxes.
- Matching Question**: Icon shows a grid of items.

Below the list, a note states: 'Please note that the VividForms Editor does not apply the English hyphenation rules to the texts entered (question texts, text boxes etc.). Please place line breaks accordingly.'

At the bottom, there are four buttons: 'Back', 'Next', 'Apply', and 'Cancel'.

**Figure 316: Add Question**

Please observe that the new question is always created in the library group which is currently marked.

### 13.2.4. Edit Questions

To edit a question, use the mouse in the editing view to mark the desired question and then click on the pencil icon in the area “Question”. The question wizard known from

work with the VividForms Editor opens. Here, the desired changes (e.g. changes to the question text, the answer options or the scores etc.) can be made.

**Note:**

Please note that it is also possible to edit questions for which data from item analysis is already available. Therefore be very careful with your changes.

### 13.2.5. Edit Question Groups

To edit a question group, use the mouse to mark the group or any question within the group and click on the pencil icon in the area "Group". Here too, the question wizard opens and enables editing.

### 13.2.6. Item Analysis

You can take a look at item analysis data by clicking on the percentage symbol. Please note that when you change existing questions in the question library, the item analysis values remain unaffected, and cannot be changed. This may mean that calculated values for correlation and difficulty may no longer be meaningful. If this is the case, you should create a new question and delete the old one.

General information on the item analysis can be found in chapter 13.1. "Item Analysis".

### 13.2.7. Copy and Delete Question Groups / Questions

To delete or copy a group or a question, mark the desired element and select the relevant action.

**Note:**

Please observe, when deleting a question group, all questions contained therein are also deleted.

**Hint:**

Copied questions will always be inserted at the end of a question group. Questions can be moved in your own question library via drag & drop. Thereby questions can be duplicated and restructured in new question groups.

The question can be dragged to another question group by holding the left mouse button. By releasing the mouse button the question will be saved in the new question group.

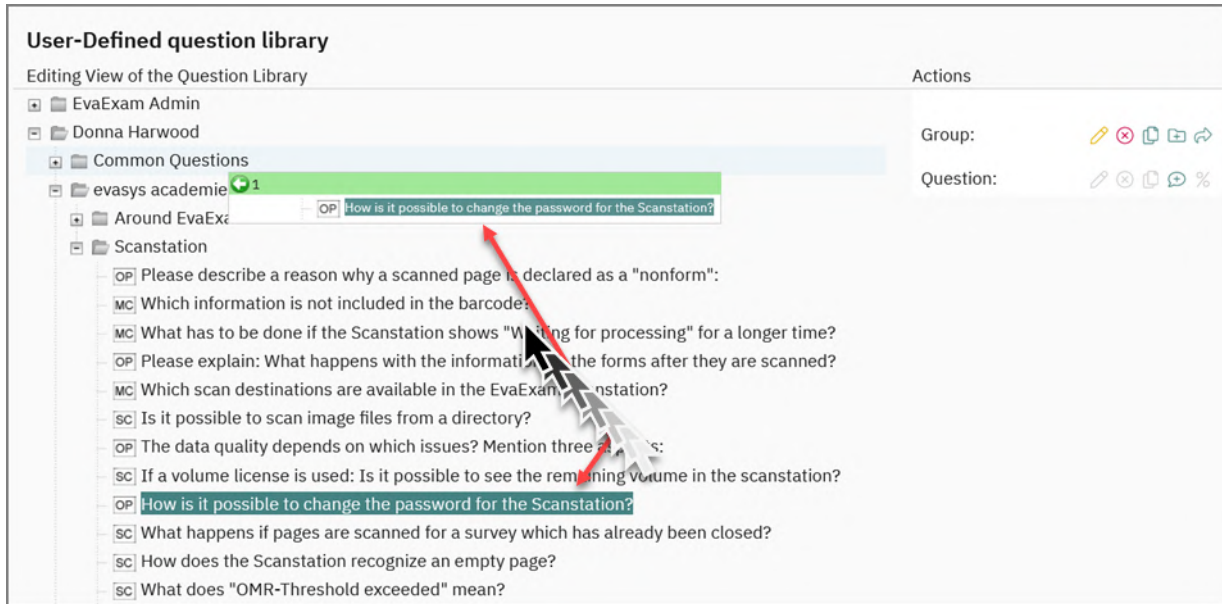


Figure 317: Drag & drop in the question library

### 13.2.8. Import and Export of the Question Library

Where necessary, the entire content of the question library can be exported as a CSV file. Furthermore, question groups and questions can be imported with the help of the CSV format. Both functions and a “Print view” are available below the editing view in the menu “Actions/Question Library”.



Figure 318: Export and Import of the Question Library

With the help of the CSV import you have to possibility to import a question library already existing outside the evaexam system. The import file can be prepared in Excel and then be converted to CSV format.

When importing a question library as a CSV file, you must maintain the following structure:

Column A	Question group title
Column B	Question types *
Column C	Amount of options
Column D	Question text
Column E	Answer options/Lines
Column F	Blank
Column G	Blank
Column H	Points for exam questions
Column I	Exam question true / false(1/0)
Column J	Level of difficulty
Column K	Max. numbers of characters (online)
Column L	Additional options
Column M	Short name
Column N	Explanation
Column O	References
Column P et. sq.	Item analysis

**Table 6: CSV Import Question Library – Composition**

**Column B – Question Types:** The **question types** are assigned numbers, the following schema is valid:

2 – Open Question

8 – Multiple Choice Question (also used for Kprim Questions with correspondent additive)

10 – Single Choice Extended Question (also used for True/False and Matching Questions with correspondent additive)

**Column C – Number of options:** In single choice, multiple choice, true/false and Kprim questions, the number of response options is recorded here. For open questions and matching questions this field remains empty.

**Column E – Answer options/Lines:** In open questions you can enter the number of lines available to the exam participant for his/her response here. In single choice, multiple choice, true/false and Kprim questions, the response options are recorded here. Please note that the different response options must be separated by a vertical line (Pipe) “|”. In matching questions the pairs are recorded. They are assigned by the symbol <=>.

**Column F – Blank column:** For exam questions this field remains empty. Nevertheless the column has to be contained in the CSV file.

**Column G – Blank column:** For all exam questions except matching questions this field remains empty. For matching questions the order of the horizontal and vertical answer options is defined here (numeric value from 0 to X, separated by Pipe symbol "|").

**Column H – Points for exam questions:** For all questions except Kprim questions. the points for the response option are defined here. Please note that the order of the points must correspond to order of the response options. The different points must also be separated by a vertical line (Pipe) "|". For Kprim questions you define here, which statement is true (1) and which is false (0). The four values are separated by the Pipe symbol "|". For multiple choice questions with correct answer combination, define which answer options are correct (1) and incorrect (0). Separate the individual values with a vertical line (Pipe). Also, in the same column, insert the achievable score and negative points, if any.

*Example of a multiple-choice question with five answer options, an achievable score of three points and no negative points: 1|0|1|1|0|3|0*

**Column I – Exam questions:** A "1" entry stands for an exam question, i.e. a question for the examination tool evaexam exists. A "0" entry denotes no exam question, i.e. a study course question exists.

**Column J – Degree of Difficulty:** The assigned degree of difficulty of a question is entered here. Values between "1" and "5" are possible. The value "0" means that no degree of difficulty has been assigned.

**Column K – Maximum Number of Characters for Open Questions (Online):** To answer open questions in online exams, a maximum permitted number of characters can be specified here. This means a participant cannot type in more characters than predefined. When the value is "0", the participant can type in as many characters as desired. This column remains empty for all other questions. For matching questions, the IDs of the answer options are defined here.

### Column L – Optional values for additional question functions

This value provides some additional information on the question. You should not change values that you find in this space, unless you know exactly what you are doing. Never remove the column; simply leave it blank if necessary. If you want to create new questions in the CSV file, you can use the following values:

"128" means a Multiple Choice question in which only the correct answer combination is considered a correct result.

"256" means a Single Choice question with only two options (True/False question).

"512" means a Single Choice question that is part of a Matching question. Matching questions are technically composed of extended pole texts and a Single Choice question per row.

"2048" means a Kprim question. Technically, Kprim questions are multiple choice questions with a fixed set of answer options.

**Column M – Short name**

At the moment, this information has no further use in evaexam.

**Column N – Explanation**

The explanation contains information on the correct answer (e.g. how to find the solution) and is displayed in the individual report. This text is also displayed when checking an online practice.

**Column O – Reference**

The reference helps to provide additional information, such as web links. It is displayed in the individual report and when checking an online practice.

**Column P et sq. – Item Analysis Values**

These values are required to create a calculation for the degree of difficulty and the index of discrimination (point-biserial correlation coefficient). You should not alter this information. Please remember that if you change question content for questions with item analysis turned on, the values may no longer be consistent. If you do this, delete the values in columns 16 to 32. For more information, see

The following example should clarify the structure of a CSV file for you:

General Knowledge	8	6	Name the three main components of air.	Nitrogen Argon Carbon dioxide Hydrogen  Helium Oxygen			1 0 1 0 0 1	1	1	
General Knowledge	2		Please describe the structure of a water molecule.	8				1	3	800
General Knowledge	10	3	What is a NiMh-battery made of?	Cadmium-Selenium  Nickel-metal hydride  Uranium-Iron alloy			-1 1 -1,5	1	1	

**Table 7: An Example of the CSV File Structure when Importing and Exporting the Question Library**

This structure is also valid for the export of the question library as a CSV file. To import a question library, click on [Browse] and select an evaexam question library file. To start the import process, click on [Import].

To export click on [Export]. A “Save as...” dialog appears. Select a folder and click on [Save].



To integrate question groups and questions from the library into your questionnaire, please open the question library in the VividForms Editor. For more information see chapter 13.2. "Question Library".

**Hint:**

If you already have an extensive item database in a third system which you would like to include in your evaexam system, there is the possibility to have it imported as a service. If you are interested, please contact your vendor.

### 13.2.9. Print View

The print view of the question library is available below the editing view in the menu “Actions/Question Library”. Here the content of the question library including all defined shares (shared question groups) can be displayed and printed, if necessary.

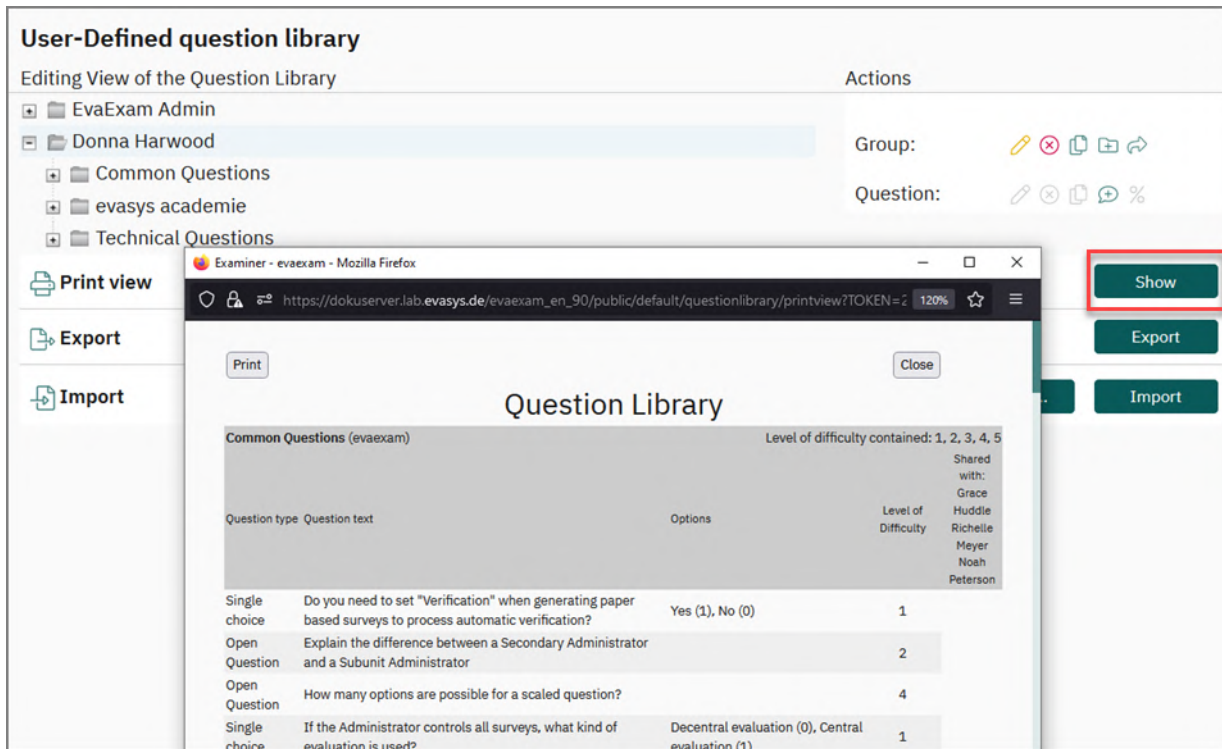


Figure 319: Print View of the question library

## 14. Calculations

### 14.1. Discrimination

#### Calculation of the index of discrimination in the report

The index of discrimination in the report is output as a Pearson correlation coefficient and describes the correlation between points achieved in this question compared to the overall result of all questions without this question; the values range between 1 (every participant who achieved the maximum points in this task also achieved the maximum score in the overall result) and -1 (every participant who achieved the maximum points in this task also achieved the minimum score in the overall result).

$$\frac{\sum((P_m - P_d) * (A_m - A_d))}{\sqrt{(\sum(P_m - P_d)^2 * \sum(A_m - A_d)^2)}}$$

**Figure 320: Pearson Correlation Coefficient**

$P_m$  are the **achieved** points of a candidate in the exam **without** this question

$P_d$  are the **average** scores of all test subjects **without** this question

$A_m$  is the achieved **score** of a test participant **for** this question

$A_d$  is the **average** of the achieved points of all examiners **for** this question

### Calculation of the index of discrimination in the item analysis

The index of discrimination in the item analysis is calculated as a point-biserial correlation coefficient. It can have a value between -1 and 1. The higher its value, the greater the correlation between having answered the question correctly and a good total exam result. For a value of 0.8 this means: If a participant answered the question correctly, chances are high that they also received a good total result. In general, positive correlation values are uncritical. Low positive (<0.3) or negative correlation values are conspicuous. They can point to a general problem with the question, for example an ambiguous question, one or more controversial answer options or a wrong scoring.

The discrimination index is calculated by the following formula:

$$\text{Correlation} := \frac{(M_C - M_I) \sqrt{N_C N_I}}{N_{Stud} Std_{All}}$$

$M_C$  := Mean value of the overall score of all participants who have answered this question correctly

$M_I$  := Mean value of the overall score of all participants who have answered this question incorrectly

$N_C$  := Number of participants who have answered this question correctly

$N_I$  := Number of participants who have answered this question incorrectly

$N_{Stud}$  := Number of participants who have received this question

$Std_{All}$  := Standard Deviation of the overall score

## 14.2. Open questions and question analysis

Durch. Punkte	Erreichbare Punkte	Max. Punkte	Oberes Quartil (75%)	Median (50%)	Unteres Quartil (25%)	Min. Punkte	Standardabweichung
12,7	20	20	20,0	18,0	0,0	0	11,0

Schwierigkeit: 0,63  
Trennschärfe: 0,88

**Figure 321: Analysis of open questions in the report**

For open questions and for question analysis, the following values are output in addition to the difficulty and selectivity:

### Median and quartiles:

The median divides the values of a measurement series into two halves, i.e. it is the value that lies exactly in the middle of the measurement series.

In our case, for an open question or the total score, this means that in 50% of the cases a point value has been reached which is higher than this value or exactly corresponds to this value. The other 50% are either smaller or correspond to this value as well. One advantage of the median is that - in contrast to the arithmetic mean - it is not influenced by individual, particularly high or low answer values. This means that the median has the advantage of being more robust against outliers (extremely deviating values).

All quantiles are calculated in evaexam as follows:

Calculation of the auxiliary quantity k:

$$k = [\alpha \cdot (n+1)]$$

(where  $\alpha$  = quantile factor (e.g. 0.25 and 0.75 for 25% and 75% quantile, and 0.5 for the median and  $n$  = number of returns)

If auxiliary quantity k is a decimal number, it is rounded down to the nearest integer.

$$q_{\alpha} = (1 - w_{\alpha,k}) \cdot x_{k:n} + w_{\alpha,k} \cdot x_{(k+1):n}$$

with the weight  $w_{\alpha,k} = \alpha \cdot (n+1) - k$

(Note:  $x_{i:n}$  is the value x in the ordered set of data at the place i)

### Sample calculation median:

To calculate the median (50% quantile) for a measurement series of 8 returns (3,1,6,4,4,3,4,6) to an open question with a maximum of 6 points to be achieved, the following steps are to be carried out according to the above formula:

Arrange the achieved points in ascending order of size: 1, 3, 3, 4, 4, 4, 6, 6

k calculate:  $[0,5 \cdot (8+1)] = 4,5$

Round k down to the next whole number:  $k = 4$

Calculate weight:  $w_{\alpha,k} = 0,5 \cdot (8+1) - 4 = 0,5$

Calculate median (0.5-quantile) by inserting the values into the formula:

$q_{0,5} = (1 - 0,5) \cdot x_{4:8} + 0,5 \cdot x_{5:8}$  [ $\rightarrow x_{4:8}$  = fourth value in the ordered series;  $x_{5:8}$  = fifth value].

$$q_{0,5} = (1 - 0,5) \cdot 4 + 0,5 \cdot 4$$

$$q_{0,5} = 4$$

**Sample calculation quartile:**

To calculate the 25%-quantile for a measurement series of 24 returns the following steps have to be carried out according to the above formula:

Arrange the response values in ascending order of size: 1, 1, 1, 1, 1, 2, 3, 3, 3, 3, 3, 4, 4, 4, 4, 4, 5, 5, 5, 5, 5, 5

*k* calculate:  $[0,25 \cdot (24+1)] = 6,25$

Round *k* down to the next whole number:  $k = 6$

Calculate weight:  $w_k = 0.25 \cdot (24+1) - 6 = 0.25$

Calculate quantile by inserting the values into the formula:

$q_{0,25} = (1 - 0.25) \cdot x_{6:24} + 0.25 \cdot x_{7:24}$  [ $\rightarrow x_{6:24}$  = sixth value in the ordered series;  $x_{7:24}$  = seventh value].

$q_{0,25} = (1 - 0.25) \cdot 2 + 0.25 \cdot 3$

$q_{0,25} = 2,25$  is the value of the 25% quantile

*k* calculate:  $[0,75 \cdot (24+1)] = 18,75$

Round *k* down to the next whole number:  $k = 18$

Calculate weight:  $w_k = 0.75 \cdot (24+1) - 18 = 0.75$

Calculate quantile by inserting the values into the formula:

$q_{0,75} = (1 - 0.75) \cdot x_{18:24} + 0.75 \cdot x_{19:24}$  [ $\rightarrow x_{18:24}$  = eighteenth value in the ordered series;  $x_{19:24}$  = nineteenth value].

$q_{0,75} = (1 - 0.75) \cdot 4 + 0.75 \cdot 5$

$q_{0,75} = 4,75$  is the value of the 75% quantile

**Standard deviation (s)**

The standard deviation provides information about how the individual values of a measurement series are distributed around the mean value. The standard deviation is the square root of another measure of dispersion, namely the variance. The variance describes the average of the squared deviations of the individual values from the mean value.

The advantage of the standard deviation over the variance is that it is not a squared value. Thus it is better interpretable with regard to the single values.

$$\sigma_X = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2}$$

**Figure 322: Formula for calculating the standard deviation**

**Sample calculation:**

To calculate the standard deviation, the following steps are to be performed for a series of 8 results (3,1,6,4,4,3,4,6) on an open question with a maximum of 6 points to be achieved according to the formula above:

Form the sum of the squared differences of the individual values to the mean value:

$$(3 - 3,875)^2 + (1 - 3,875)^2 + (6 - 3,875)^2 + (4 - 3,875)^2 + (4 - 3,875)^2 + (3 - 3,875)^2 + (4 - 3,875)^2 + (6 - 3,875)^2 = 18,875$$

Divide sum by (n - 1):  $18,875/7 = 2,696$

Pull square root from 2.696.

The standard deviation is 1.642.

Median and standard deviation are also shown in the score distribution in the "General Report + Question Analysis" section of the General Report.

3. Summary report + Question analysis						
<u>Score distribution</u>						
Participants	Achievable score	Average score	Max. score	Min. score	Median (50%)	Standard deviation
5	19.50	13.90	17.50	10.50	14.00	3.15

**Figure 323: Score distribution**

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