

Quick Start Guide

ZEN 2 core



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1 WELCOME




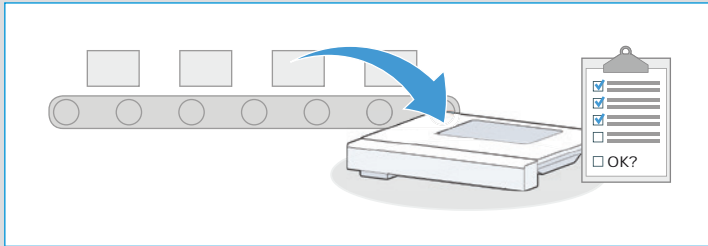
1.1 Introduction

Welcome to the ZEN 2 core Quick Start Guide.

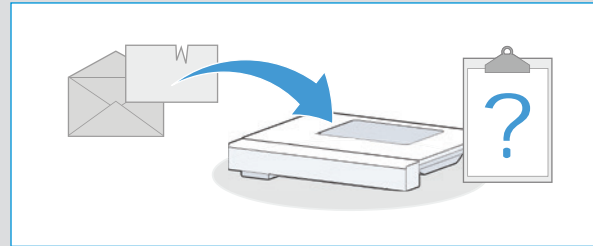
ZEN 2 core is designed for analyzing various kinds of samples using a wide range of ZEISS microscopes. The modern and intuitive user interface guides you through all the steps needed to examine your sample.

This Quick Start Guide introduces you to the most important features, functions, and information you need to know to start using ZEN 2 core quickly.

For the complete documentation refer to the Online Help (click the  icon in the user interface).



Jobs (Routine Examinations)



Free Examinations

1.2 Workflows

ZEN 2 core is designed to support two fundamental ways of using your microscope:

- Working with jobs
(creating, running, editing and managing jobs)
- Performing free examinations

Jobs: A collection of examination tasks that can be created to ensure that the same examination tasks are carried out each time the job is run, in the same manner, and with the same settings.

Jobs can be used in routine quality control examinations where repetitive identical examinations are performed for each sample.

Free examinations: Used to inspect a sample quickly, easily, and flexibly. A typical use is to examine a faulty sample where the cause of the fault is unknown or for one-off examinations that will not be repeated.

1.3 User Roles

The user management described in this guide is optional and can be activated in the software.

How you work with ZEN 2 core depends on your user role in the system:

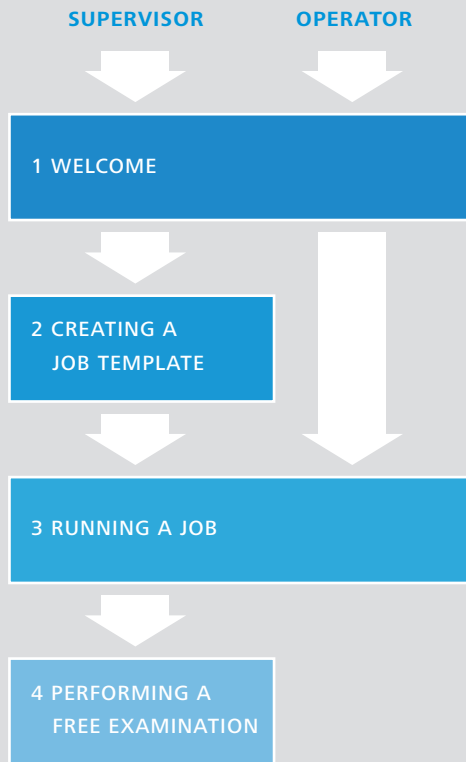
- **Supervisor**
Supervisors are experienced microscope users. They can create jobs for routine examinations or perform free examinations.
- **Operator**
Operators are the typical category of user. They run jobs that have been created by a supervisor.
- **System Administrator**
System administrators manage and configure the software, including user accounts, global settings, and calibration. These tasks are not described in this Quick Start Guide.

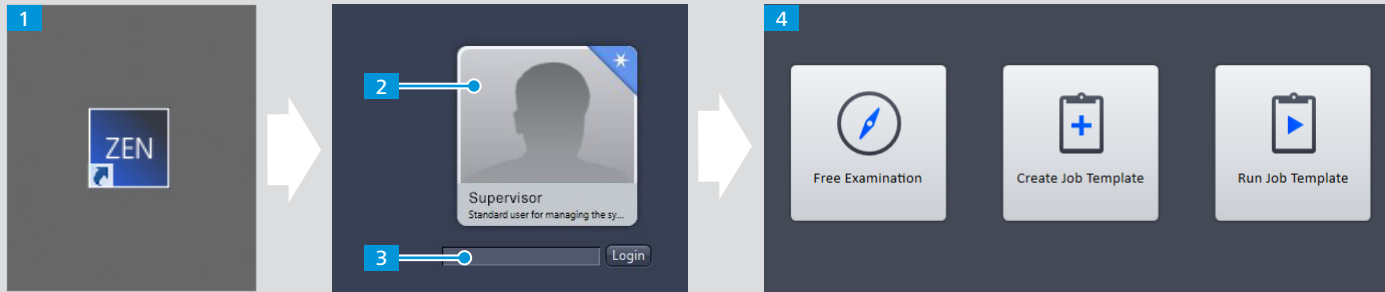
The described user roles are pre-configured. The integrated user management enables you to configure user groups, user roles, and user privileges according to your needs.

The graphic indicates which sections of this Quick Start Guide are relevant to you.



Relevant Sections of Quick Start






1.4 Starting the Software and Logging In

To start working with ZEN 2 core:

- 1** On your Windows Desktop, double-click **ZEN 2 core**.
- 2** Click your name in the list of users.
You can see your user role (for example supervisor or operator) below your name.
- 3** Enter your password and click **Login**.
- 4** Click the icon of the operating mode you wish to use.

For help on any tool or function, click the  icon and select the item.

If the software is not installed or the hardware is not configured, contact your system administrator.

2 CREATING A JOB TEMPLATE

(This chapter only applies to supervisors)

2.1 Workflow

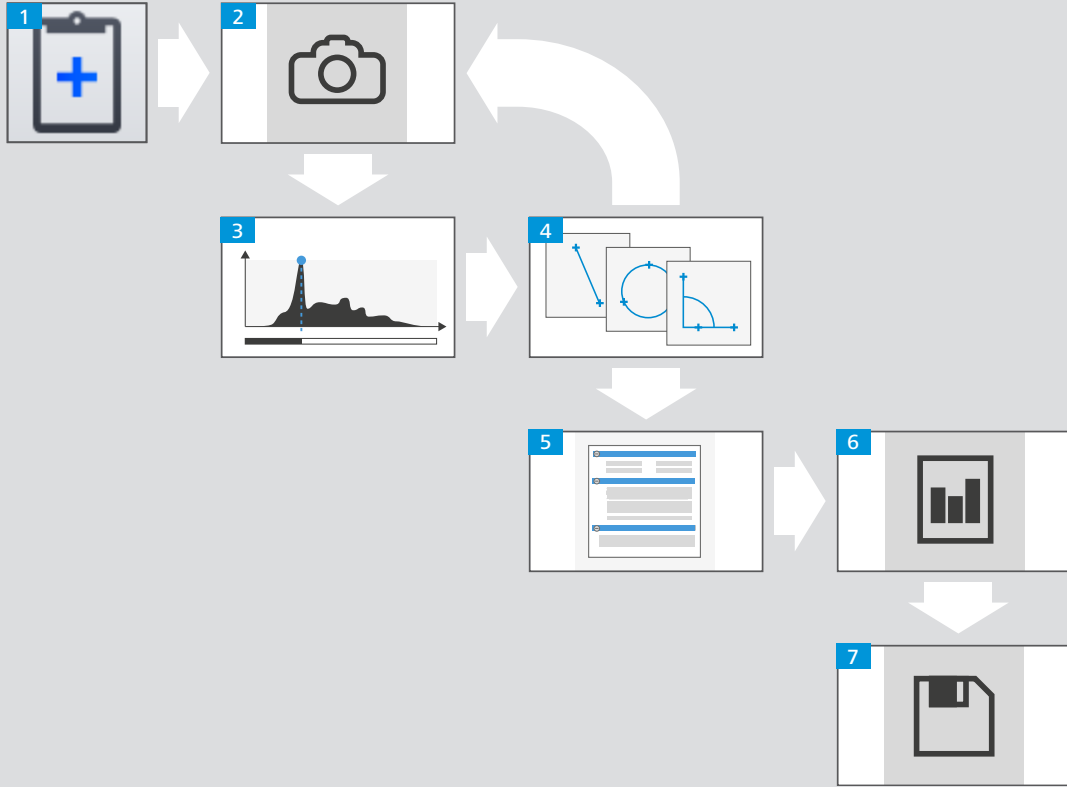
When creating a job template, you specify the following:

- Tasks the operator has to perform
- Tools that are available or locked for each task
- Upper and lower limits for the tool parameters
- Expected values and tolerances for measurements

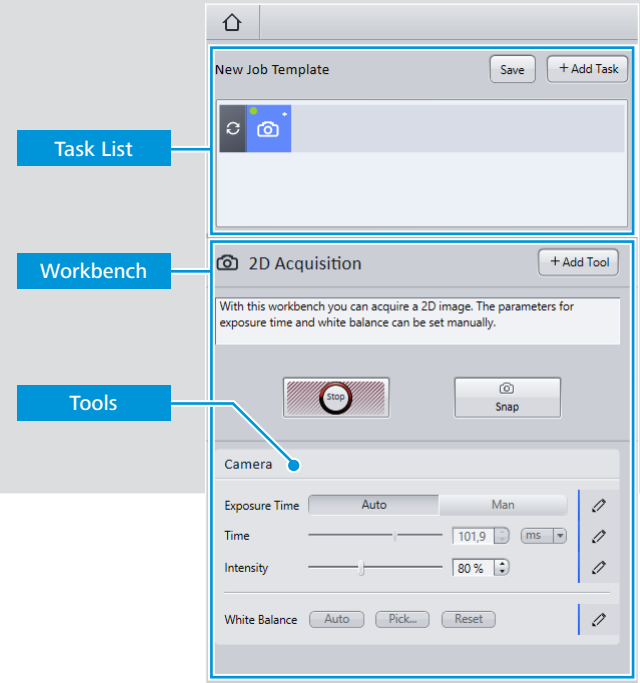
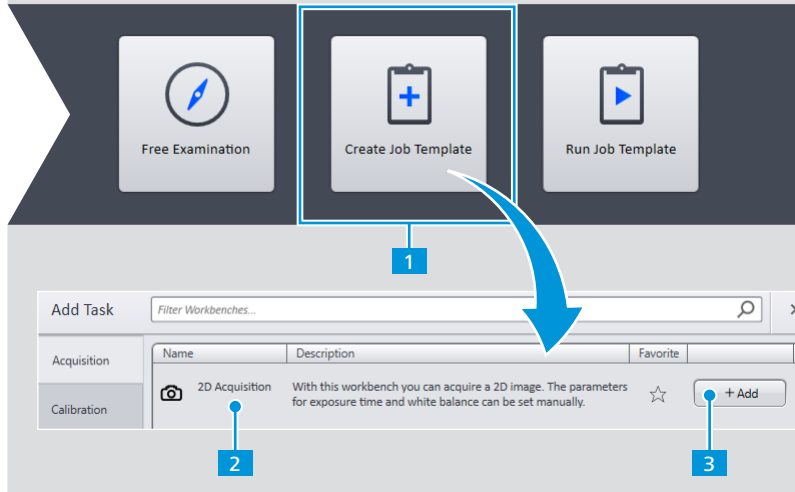
Supervisors have the following typical workflow when creating a job template:

- 1 Select **Create Job Template** mode from the Home Screen.
- 2 Acquire an image.
- 3 Process the image.
Enhance the image and configure which parameters can be modified.
- 4 Analyze the image.
Define the measurements to be performed and configure the acceptable measurement tolerances.
If desired, repeat steps 2 – 4.
- 5 Configure the input form.
- 6 Configure the job report.
- 7 Save the job.

Note: The following tutorial assumes your microscope has a motorized stage.



2 CREATING A JOB TEMPLATE



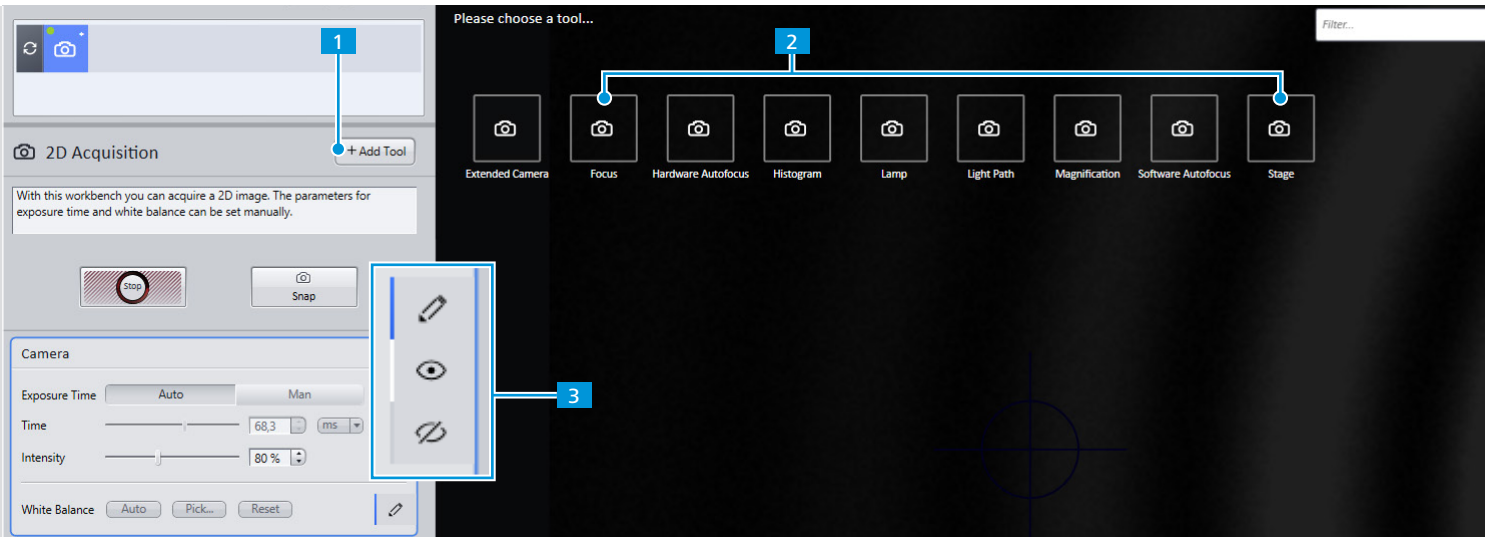
2.2 Creating a New Job Template

A job template contains all the examination tasks to be performed when the job is run; from acquiring an image, through to processing it, analyzing it, and creating a report.

- 1 Select **Create Job Template** mode from the Home Screen.
- 2 Select the **Acquisition** category.
- 3 Select a workbench, for example **2D Acquisition** and click **Add**.

Each task to be performed by the operator is represented by an icon in the Task List. By adding and structuring tasks you can create the workflow for the operator when running the job.

The workbench and tools for a task are displayed in the Workbench Panel.



2.3 Adding Tools and Modifying Parameter Privileges

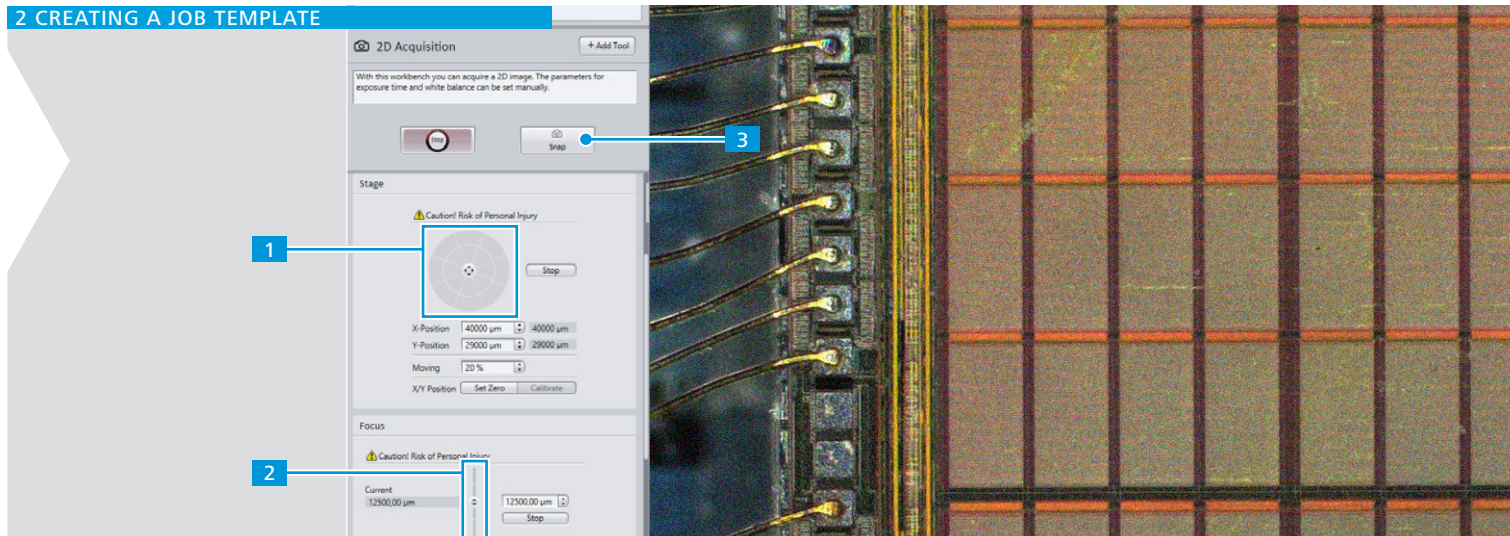
Each workbench loads with a pre-configured set of tools visible (e.g. the **Camera** tool in the **2D Acquisition** workbench). The visible tools are available to the user who runs the job. For example, to enable the user to focus and navigate the sample, you have to add the **Focus** and **Stage** tools.

1 Click **Add Tool**.

2 Double-click **Focus** and **Stage**.

3 You can specify the user's privileges for each parameter when running the job. Click the icon until the parameter has the desired state:

- Parameter can be seen and changed
- Parameter can be seen but not changed
- Parameter is invisible and cannot be changed



2.4 Acquiring an Image

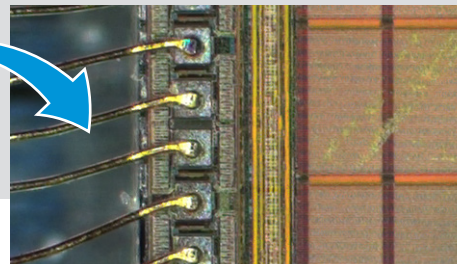
Acquiring an image is the first step when working with the microscope. After you have acquired an image you can process and analyze it, and, if desired, add it to a report.

- 1 Scroll to the **Stage** tool and click the segments of the **Navigation Circle** until the desired region of the sample is visible.
If available, you can use the hardware joystick to navigate to the desired sample region.

- 2 Drag the **Navigation Bar** in the **Focus** tool until the sample is sharp.
Alternatively, you can use the focus knob of your microscope.
- 3 Click **Snap** to acquire an image.

The screenshot shows the 'New Job Template' interface. On the left, the 'Task List' has a '+ Add Task' button (1). The 'Tool Overlay' at the top right shows the 'Processing' category selected, with 'Image Processing' (2) and 'Table Processing' visible. The 'Tool Panel' in the middle shows the 'Edges' category with 'Highpass' (3) selected. The 'Tool Configuration' window at the bottom shows the 'Gauss' tool parameters (4) and a table for parameter ranges (5, 6):



Name	Minimum	Maximum	Default
Sigma X	0.4	100	1.3
Sigma Y	0.4	100	1.3



2.5 Processing the Image

Image processing modifies the appearance of an image and enhances features of the sample. If you apply multiple image processing tasks, they are applied in order from left to right in the Task List.

- 1 Click **Add Task** and select the **Processing** category.
- 2 Select **Image Processing** and click **Add**.
The Image Processing workbench is displayed in the Workbench Panel. Initially no tools are visible.

- 3 Click **Add Tool** and double-click the desired tool in the Tool Overlay. For example, select **Gauss** and **Highpass** to reduce the image noise and find edges.
- 4 Adjust the values of the parameters as desired and click .
- 5 To specify the range of values that an operator can select, click  in the tool header.
- 6 Enter the lower and upper limits for the parameters.

2 CREATING A JOB TEMPLATE

New Job Template Save + Add Task **1**

↺ 📷 📏 📐

↔ Interactive Measurements + Add Tool

With this workbench you can perform interactive measurements and add annotations to the image. **4**

Favorites 📏 📐 📏 📐 **2**

Length 1

Distance 64.820 μm Redraw

Circle (points) 1 ⚙️ ✕ **3**

Area 1,393.920 μm² Redraw

Diameter 42.128 μm

Properties ? ✕

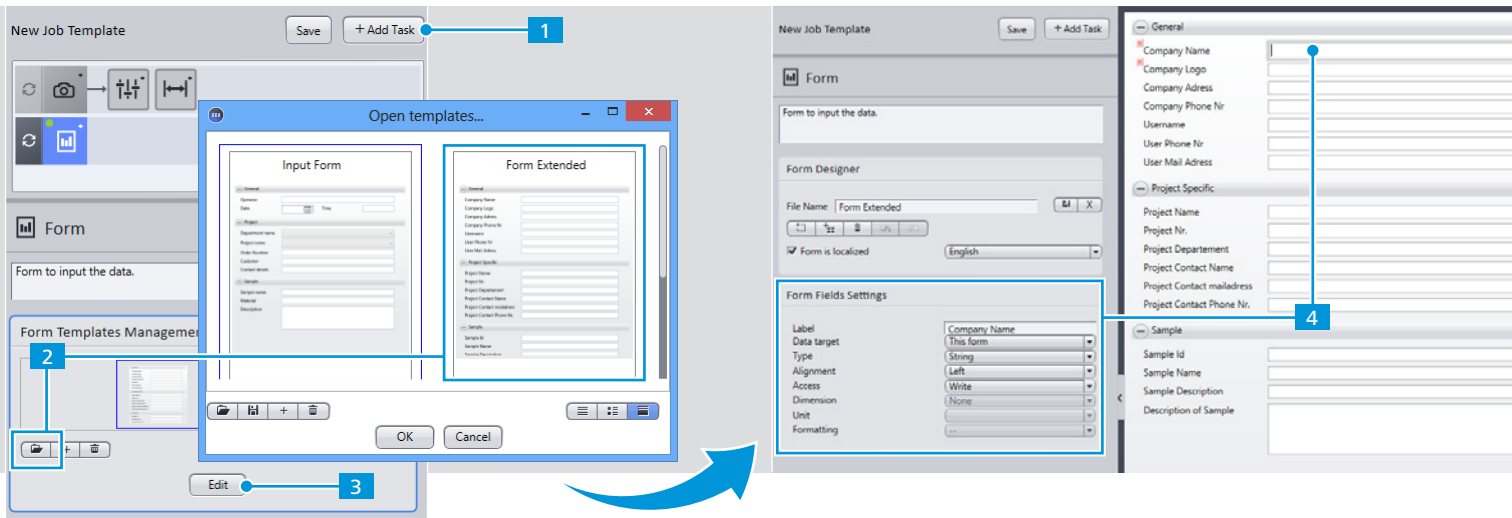
	Expected value	Upper boundary	Lower boundary	Label	Show on image	Hide in results	Hide on tool
ElementID				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Area				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diameter				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name	Circle (points) 1						

2.6 Analyzing the Image

Once you have acquired an image you can analyze its properties by performing various types of measurements.

- 1** Select an analysis workbench.
Add Task > Measurement > Interactive Measurement > Add.
The four most common tools are visible. For further tools, click **Add Tool**.
- 2** Select a tool and click in the image to measure the sample.


- 3** To specify measurement tolerances click the icon.
 - Expected value**
Typically the theoretical value contained in the CAD data or sample specifications.
 - Upper and lower boundary**
Limits between which the measurement must lie, e.g. to fulfill quality control criteria.
- 4** Enter instructions about how to perform the task, for example which part of the sample should be measured.



2.7 Configuring the Input Form

Forms provide a simple way to enter information when a job is run. Information can be entered into a form automatically (e.g. current time and date) or manually (e.g. current sample number).

1 Click **Add Task > Reporting > Forms > Add**.

2 Click  and select the desired form template, for example **Form Extended**.

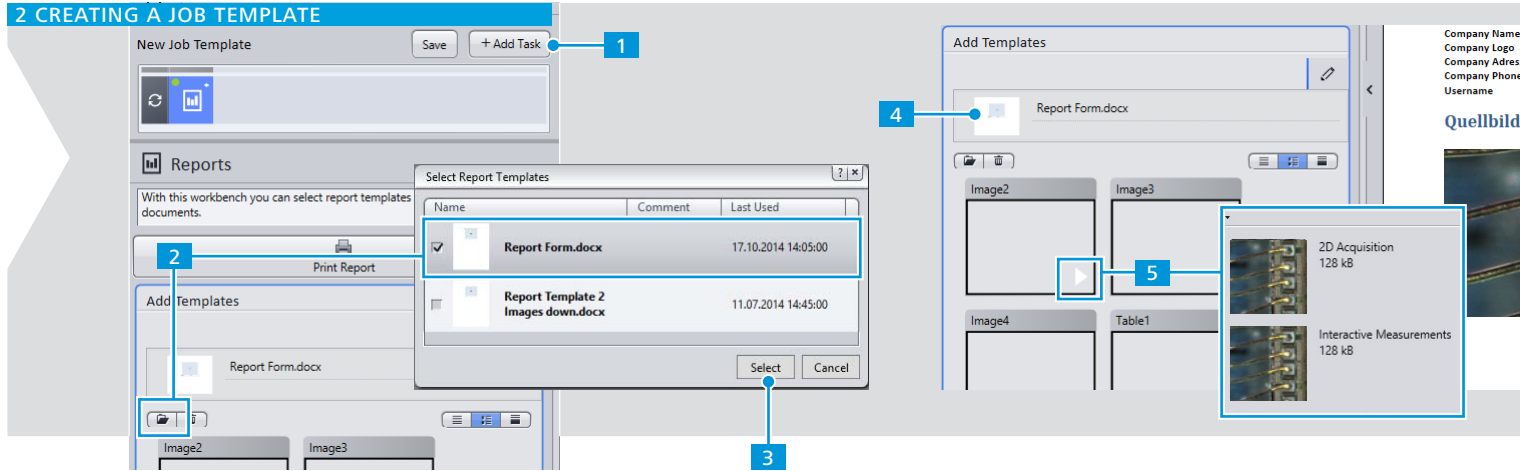
3 Click **Edit**.

4 Click a field and use the **Field settings** tool to customize the information to be entered for each field.

You can also specify how the information is entered:

- Manually (e.g. sample ID), **Data target = This form**
- Automatically (e.g. current date).



2 CREATING A JOB TEMPLATE

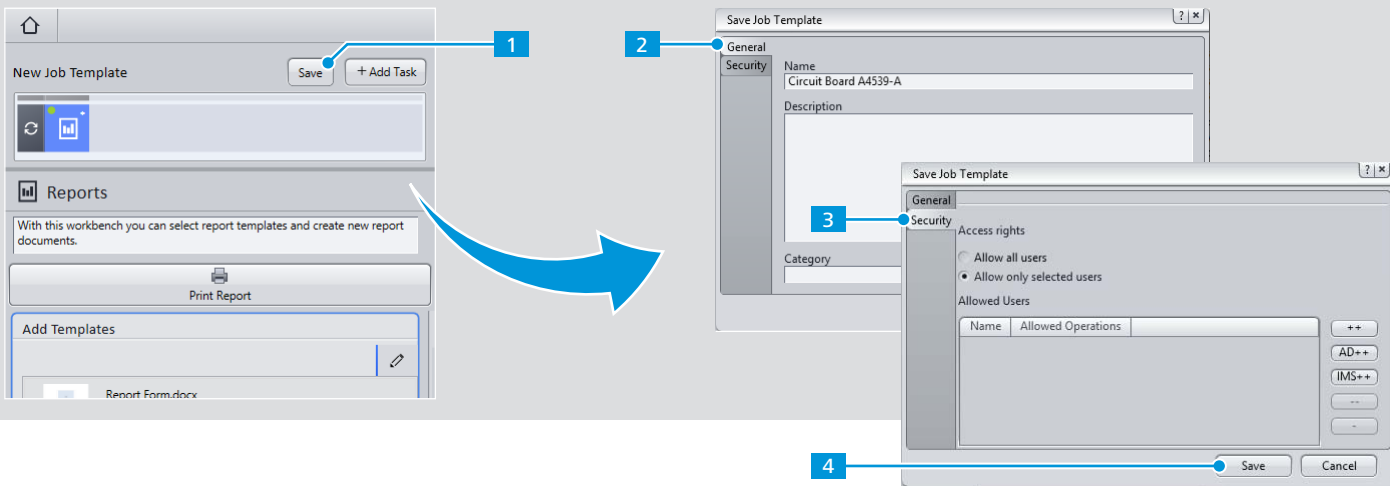


2.8 Configuring the Job Report

Reports enable you to collate all the information from your examination, for example images, measurement data, and hardware setup, in a single document as a protocol of your examination.

Reports contain placeholders to enable you to collate the information easily. The placeholders also ensure that each time the job is run, the same information is added to the report.


- 1 Click **Add Task > Reporting > Reports > Add**.
- 2 Click .
- 3 Activate the checkbox of the desired report template, for example **Report Form**, and click **Select**.
- 4 Select the report template in the **Add Template** tool to display the available placeholders.
- 5 Click  in a placeholder and select the corresponding measurement information that you wish to add. You can add multiple items to a single placeholder.



2.9 Saving and Completing the Job Template

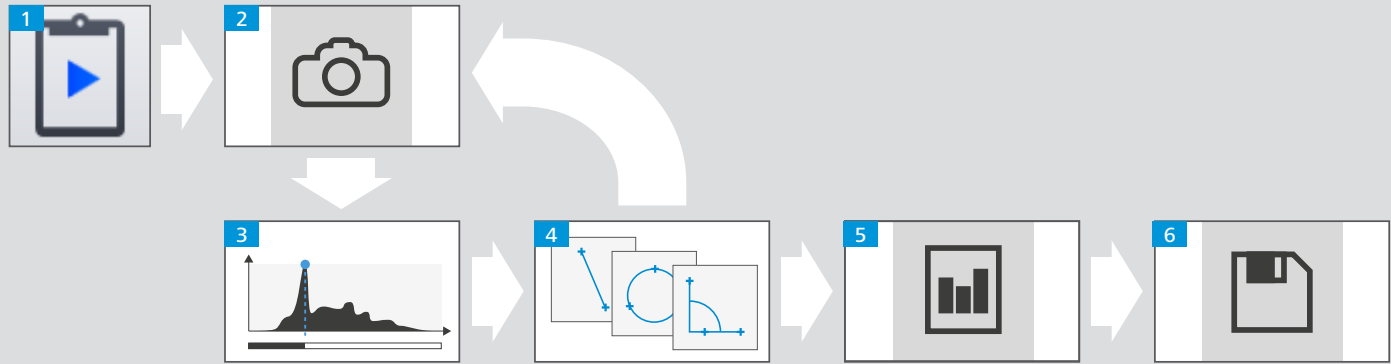
You can save a job template at any time during its creation.

- 1 Click **Save**.
- 2 In the **General** tab enter a meaningful **Name** and **Description**.
These should enable the operator to select the correct job to run.
- 3 In the **Security** tab specify which users should be allowed to run the job.
Typically, a group of users is specified, but you can also specify individual users. By default, a job can be performed by any user.

- 4 Click **Save** and click .
The job template is stored in the archive and can be run by any user with the appropriate privileges.

3 RUNNING A JOB

(This chapter applies to supervisors and operators. However, for the sake of simplicity, this chapter is described from the operator's perspective.)



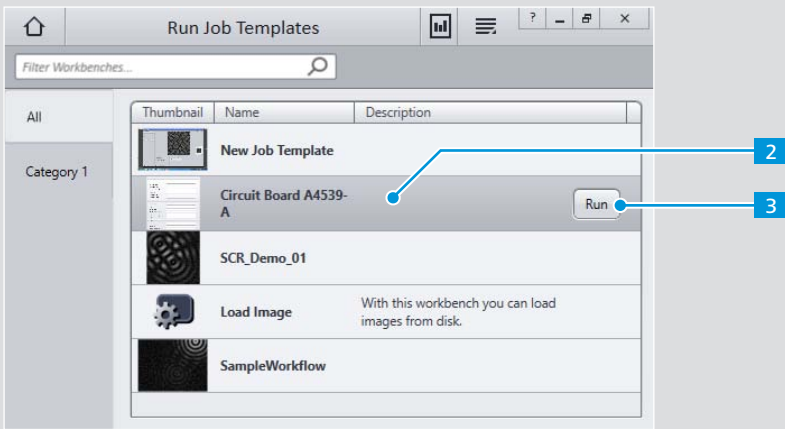
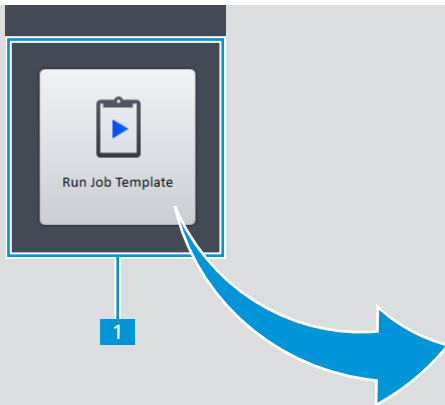
3.1 Workflow

The following steps illustrate how you run a job. The actual sequence of steps varies and depends on the job template used.

- 1 Select the appropriate job for the sample.
- 2 Acquire an image of the region.
- 3 Process the image to enhance its appearance.
- 4 Perform the analyses.
- 5 Check the information in the job report.
- 6 Save the job results.

You are guided through all the required steps and automatically presented with the necessary tools and information to perform them. Any steps where no interaction is required are performed automatically in the background.

Text from the supervisor describes what to do with each tool, for example, where to perform which analysis on the sample.

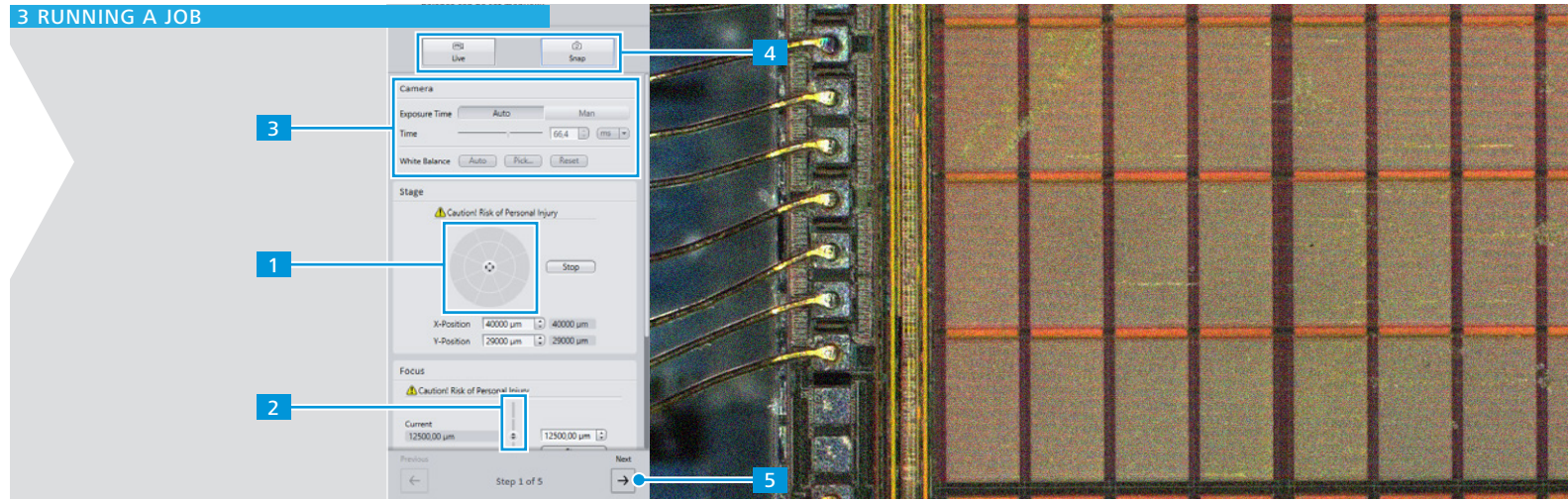


3.2 Selecting a Job

To select the appropriate job for the sample to be examined:

- 1 On the Home Screen click **Run Job Template**.
- 2 Select the desired job in the list.
- 3 Click **Run**.
The first step in the job is displayed (typically acquiring an image).

If the job requires a different hardware configuration to your current setup, the system prompts you which components need to be changed. For more information about how to change components, see your microscope instruction manual.

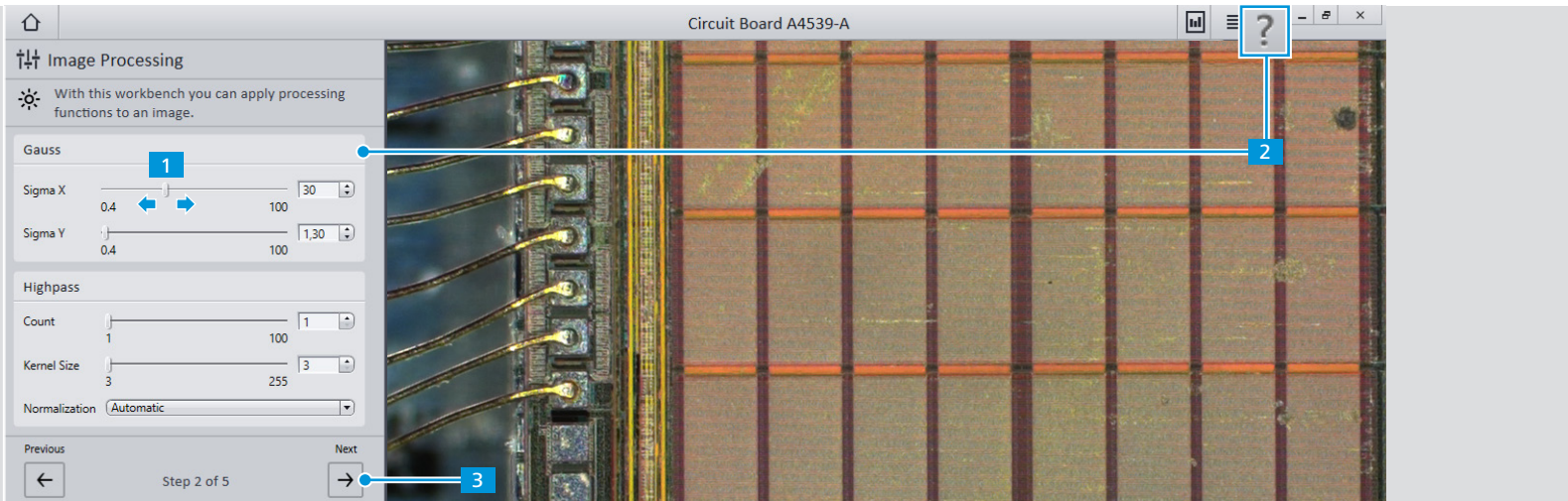


3.3 Acquiring an Image

The first task is typically to acquire an image. Ensure that you acquire the same area of the sample as the supervisor. The instructions at the top of the Task Panel explain which region of the sample to acquire.

- 1 Move the stage until the desired region of the sample is visible (e.g. click the segments of the **Navigation Circle** in the **Stage** tool, if available). Otherwise, move the sample on the stage by hand and focus manually. For more information, see your microscope instruction manual.

- 2 Drag the **Focus Bar** in the **Focus** tool until the sample is sharp.
- 3 If desired, adjust the acquisition parameters so that the features of the sample are clearly identifiable.
- 4 Click **Snap**. If you are not satisfied with the image, click **Live** and repeat the above steps.
- 5 When you are satisfied with the image, click **Next**.

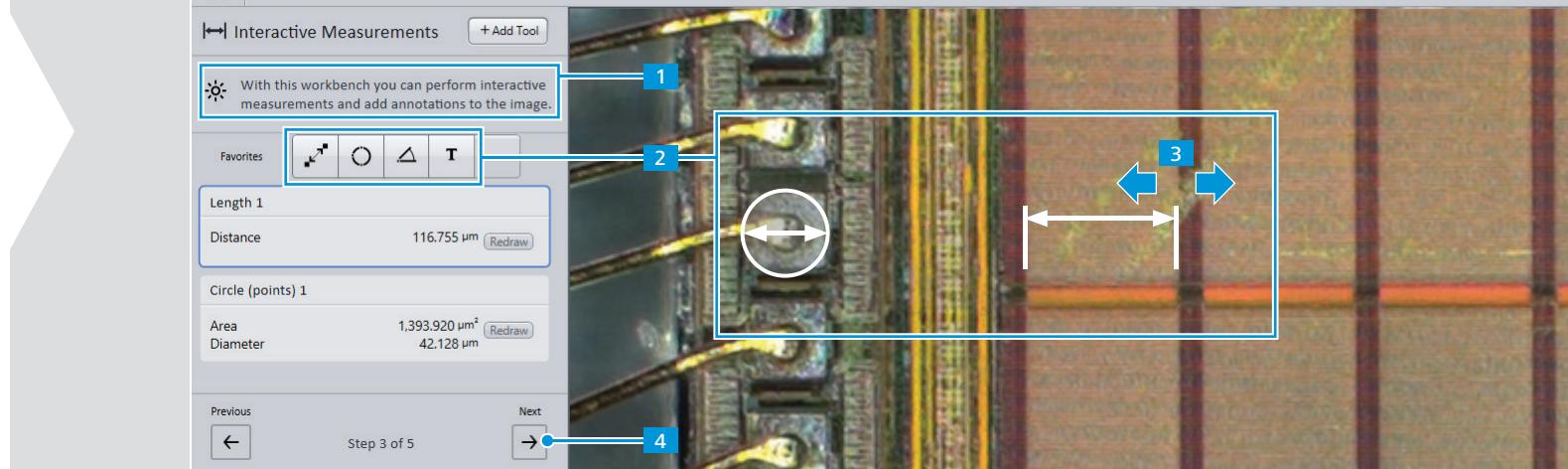


3.4 Processing the Image

Image processing enables you to adjust the appearance of the image after it has been acquired, for example to reduce noise and enhance contours.

The tools that you can use, and thus the properties that you can alter, depend on what the supervisor has enabled in the job template.

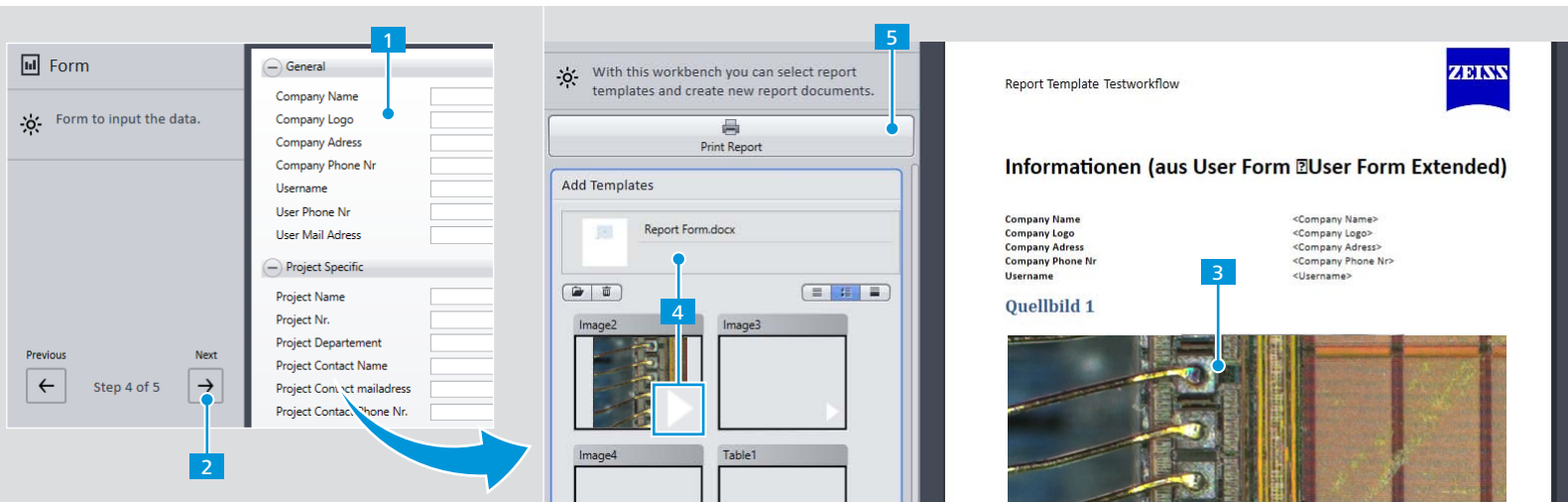
- 1 Adjust the values of the parameters until you are satisfied with the resulting image. The image updates immediately. All processing tools are applied in one go, in the order in the workbench.
- 2 For more information about a parameter, click **?** and then the tool.
- 3 Click **Next**.



3.5 Analyzing the Image

Interactive measurements enable you to extract data from the image, such as distances, angles, areas, or intensities of pixels. All the measurements to be performed in the current image are displayed in the Center Screen Area at the locations specified by the supervisor.

- 1 Follow any instructions added by the supervisor in the Workbench Panel.
- 2 Drag each tool to the correct location.
- 3 To edit an individual measurement, click it and drag the nodes as desired. The measurement value is displayed in the Workbench Panel.
- 4 Click **Next**.




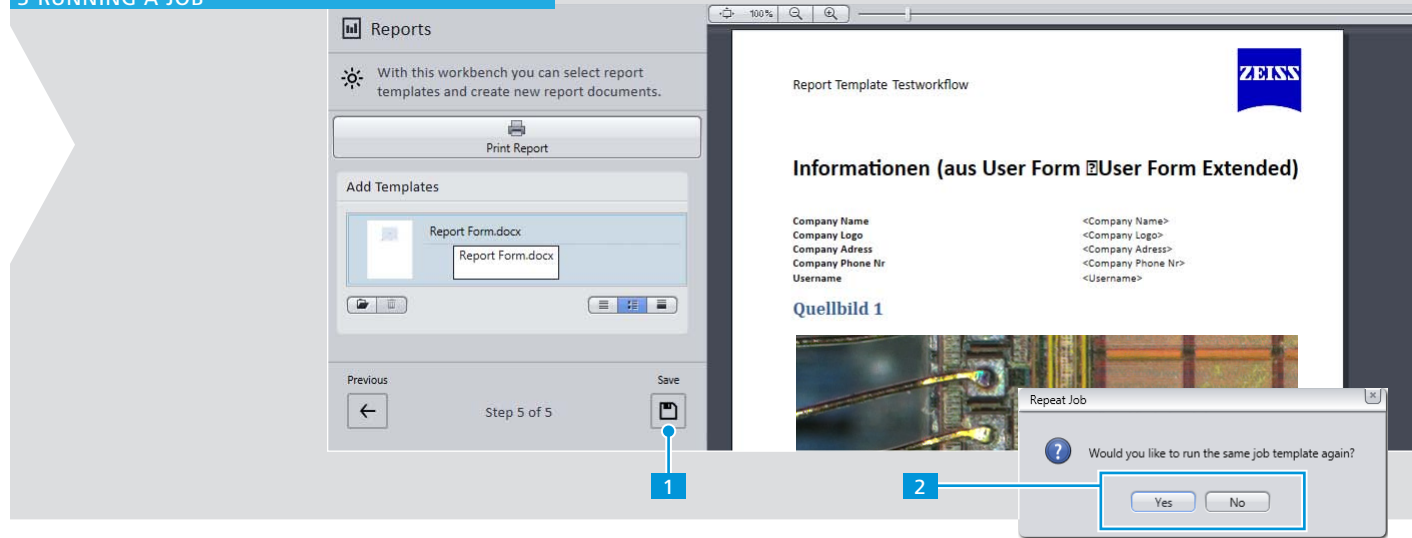
3.6 Completing the Form and Checking the Report

Once you have completed all the examination tasks in the job, you may have to complete a form. Some information is entered into the form automatically (e.g. current date) other has to be entered manually (e.g. sample number).


The images and the measurement results are automatically collated into a job report.


- 1 If required, enter all mandatory information in the input field.
- 2 Click **Next**.

- 3 Check that the required information is included (for example the correct images).
- 4 If not, select the report, click  in a placeholder, and select alternative images or measurements. You can add multiple items to a single placeholder.
- 5 If you require a paper copy of the report, click **Print Report**.




3.7 Saving and Completing a Job

When you have completed the last examination task, the  icon is displayed.

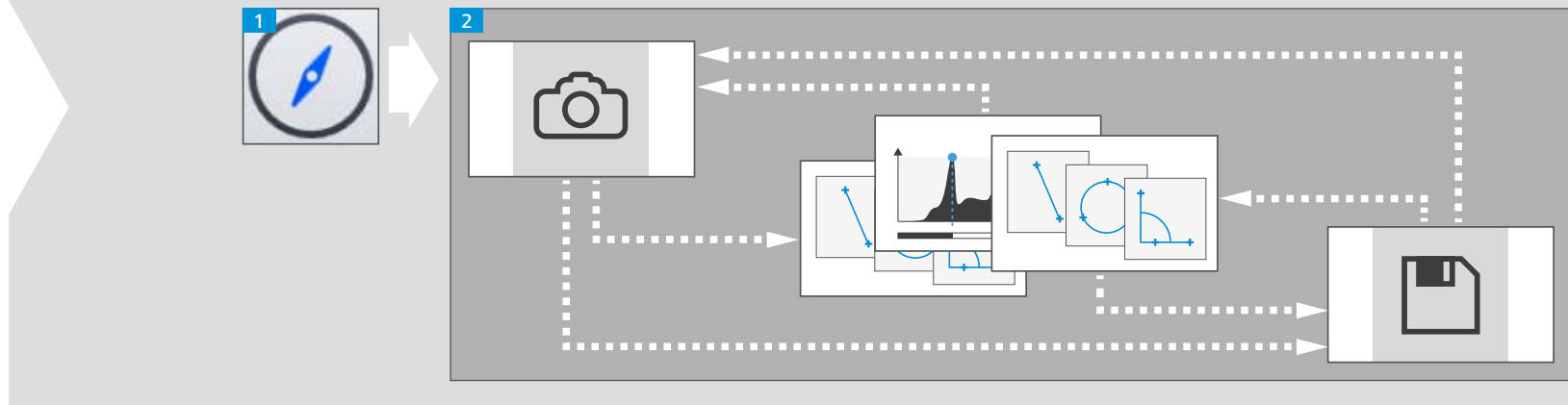
Ensure that you are satisfied with all the measurements. You can click  to return to a previous step, for example to change the values of a tool or the location of an analysis.

Note: If you make a change in a previous step, all tasks you performed in subsequent steps are discarded and must be repeated.

- 1 To complete the job, click . The measurement results and report are saved automatically.
- 2 Choose what you want to do next:
 - Repeat the same job with a new sample
 - Return to the Home Screen

4 PERFORMING A FREE EXAMINATION

(This chapter only applies to supervisors)



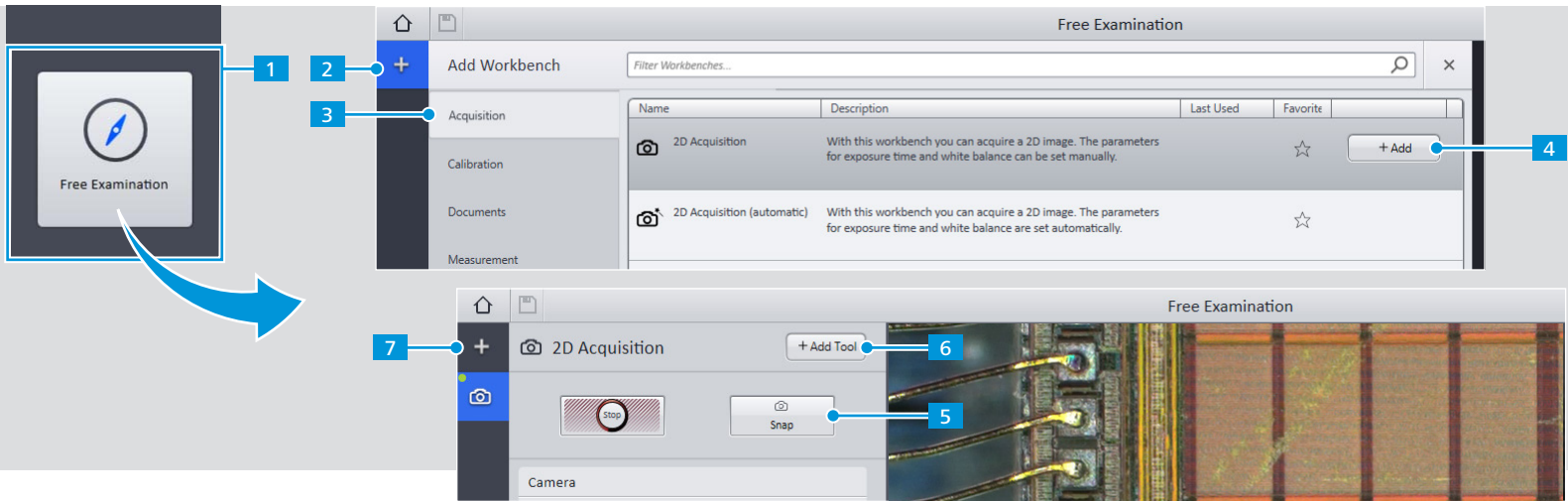
4.1 Overview

In Free Examination mode there is no typical workflow. Nevertheless, there are typical tasks that you perform:

- 1 Select **Free Examination** from the Home Screen.
- 2 Perform the following actions as desired, in any order:
 - Acquire an image.
Acquire an image using the camera or load an image from the file system.
 - Process the image.
Enhance the appearance of the image using various image processing tools.

- Analyze the sample.
- Save or export the images and analysis results.

The usage of tools and parameters is identical in Create Job Template mode and Free Examination mode. Therefore, this section of the Quick Start Guide only describes the differences between the two modes.



4.2 Performing a Free Examination

To perform a free examination, you have to select the workbenches and tools you require.

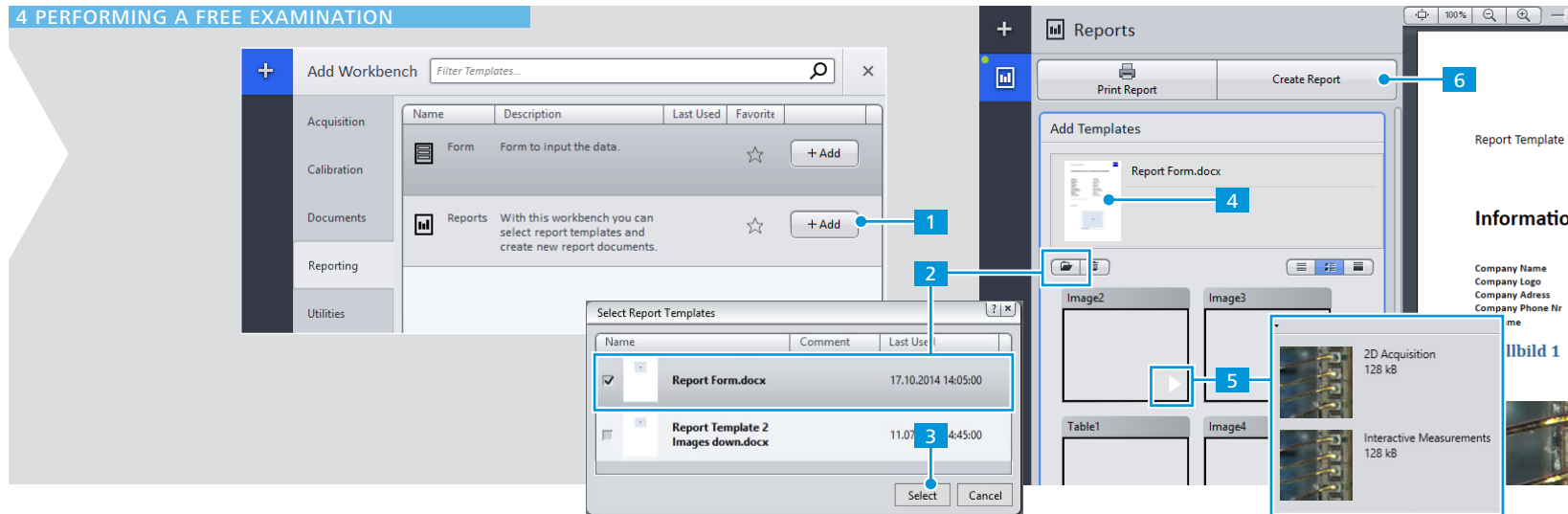
- 1 Select **Free Examination** mode from the Home Screen. Initially, no workbenches are displayed.
- 2 Click **Add Workbench**.
- 3 Select the desired category, for example **Acquisition**.
- 4 Select a workbench, for example **2D Acquisition**, and click **Add**.
- 5 To acquire an image, click **Snap**.

6 To add tools to a workbench, click **Add Tool**.

7 To add another workbench, click **Add Workbench**.

The following applies in Free Examination mode:

- You can switch between workbenches as desired.
- Each time you apply a tool, a new image is generated in the **Documents Area**.
- You can apply any number of workbenches and tools in any order.

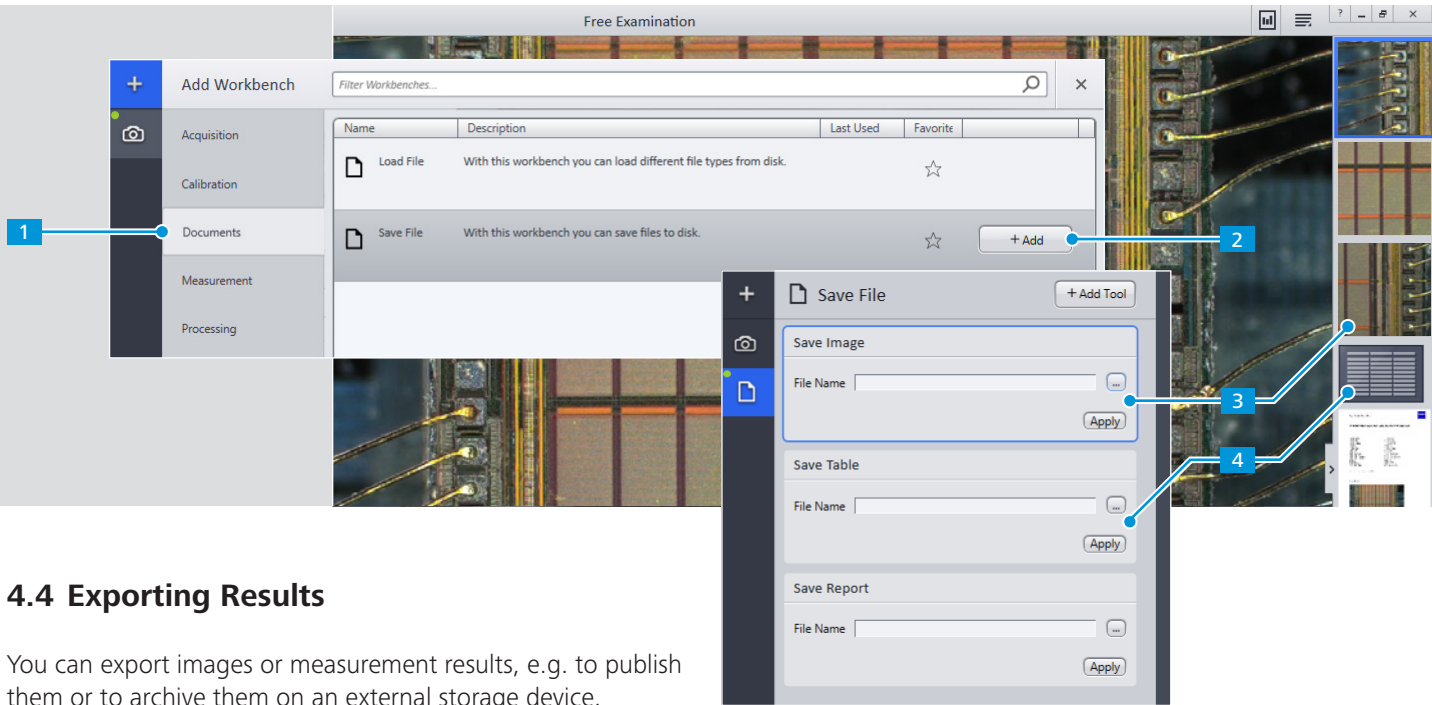


4.3 Creating a Report

Once you have obtained results from your free examination that you wish to keep, you can create a report to store the relevant information. Reports contain placeholders to enable you to collate the information easily, for example images or measurement data.

To generate a report:

- 1 Add the **Reports** workbench from the **Reporting** category.
- 2 Click .
- 3 Activate the checkbox of the desired report template and click **Select**.
- 4 Select the report template in the **Add Template** tool to display the available placeholders.
- 5 Click  in a placeholder and select the corresponding measurement information that you wish to add. You can add multiple items to a single placeholder.
- 6 Finish by clicking the **Create Report** button.



4.4 Exporting Results

You can export images or measurement results, e.g. to publish them or to archive them on an external storage device.

- 1 Click **Add Workbench** and select the **Documents** category.
- 2 Select the **Save File** workbench and click **Add**.
- 3 Select the image to be exported, specify a filename in the **Save Image** tool, and click **Apply**.
- 4 To export a measurement result, specify a filename in the **Save Table** tool, and click **Apply**.

Alternatively, you can right-click a document (such as an image or report) in the **Documents Area** and use the context menu to export it.



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