



# Pseudonymization Tool

— User Manual (for LibreOffice and Excel)



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## 1. Background

The ORCHESTRA Pseudonymization Tool (OPT) was developed as part of the EU ORCHESTRA project as part of the rapid European response to the COVID-19 pandemic and has become an important application for pseudonymizing personal data of subjects and samples. Due to the various legal frameworks in the countries involved in the project, it was a challenge to find a standard software solution suitable for all hospital and laboratory sites and technical infrastructures. Purchasing and implementing such software for each site would have been time and resource consuming.

To solve this problem, it was decided to develop a custom tool designed to fit the heterogeneous technical and regulatory environments of the ORCHESTRA project sites. This tool was urgently needed to ensure the implementation of the agreed data protection concept within the consortium. It represents a practical and pragmatic solution that takes into account the complexity of ORCHESTRA activities and provides a high level of protection of personal data.

## 2. Introduction

This user manual provides comprehensive guidance for working with the OPT. The OPT provides a user-friendly solution for pseudonymizing sensitive information, thus enabling effective data analysis and processing.

The OPT is specifically designed for use in cross-site environments, facilitating seamless collaboration and data exchange among different research locations. It is available in both Microsoft Excel and LibreOffice versions to cater to the heterogeneous (technical) needs of users.

This manual is applicable to both the Microsoft Excel and LibreOffice versions of the OPT. It aims to provide all users with a comprehensive introduction to the various features and capabilities of the tool. It is crucial for all individuals working with the tool to familiarize themselves with this manual to ensure secure and efficient processing of health data.

The OPT tool offers a wide range of functionalities that empower users to carry out pseudonymization of health data in their research projects effectively. From pseudonym generation to data management and biosample-label generation, the tool provides a user-friendly interface and powerful features to ensure data privacy and security.

We hope this manual provides you with all the necessary information to successfully utilize the OPT tool. Please read it carefully!

We wish you success in using the OPT your scientific research projects!

## 3. Launching

### 3.1 Installation

The OPT does not need to be installed. Instead, it can simply be stored in a safe place. When using the OPT on a computer, it can be stored anywhere on the PC. In a multi-user environment, the OPT must be stored on an internal network drive that can be accessed by all users.

*However, it is strongly discouraged to store the OPT tool in online applications such as Office 365 that can be accessed by multiple users simultaneously. Such environments often lead to problems with document conflicts and the risk of data loss. It is therefore strongly recommended to choose a secure storage location where only authorized users can access and work with the OPT tool consecutively.*



Choosing a dedicated, shared network storage can ensure smoother operation and reduce the risks associated with concurrent access. This approach helps maintain data integrity, minimizes potential conflicts, and protects against accidental data loss.

### 3.2 Configuration

The OPT allows comprehensive configuration options. The configuration must be carried out before the tool is used for the first time, as fundamental aspects are regulated there. The worksheet is divided into three different sections: a), b) and c).

The screenshot shows the 'Configuration' window of the ORCHESTRA tool, divided into three main sections labeled a), b), and c).

**a) General:** This section contains fields for 'Site/Project/Cohort name' (TEST VERSION), 'Site/Project/Cohort prefix' (TST), 'Local subject ID', 'Local sample ID', 'Generated subject ID', 'Generated sample ID', 'Subject master data required' (True), 'Local sample ID required' (True), 'Label print rows' (14), 'Label print columns' (4), and 'Label printing app path' (Default).

**b) Sample selection options:** This section contains a 'Select\_NBP' dropdown menu with options like 'NBP\_1', 'NBP\_2', 'NBP\_3', 'NBP\_4', 'NBP\_5', 'NBP\_6', 'NBP\_7', 'NBP\_8', 'NBP\_9', 'NBP\_10', 'NBP\_11', 'NBP\_12', 'NBP\_13', 'NBP\_14', 'NBP\_15', 'NBP\_16', 'NBP\_17', 'NBP\_18', 'NBP\_19', 'NBP\_20', 'NBP\_21', 'NBP\_22', 'NBP\_23', 'NBP\_24', 'NBP\_25', 'NBP\_26', 'NBP\_27', 'NBP\_28', 'NBP\_29', 'NBP\_30', 'NBP\_31', 'NBP\_32', 'NBP\_33', 'NBP\_34', 'NBP\_35', 'NBP\_36', 'NBP\_37', 'NBP\_38', 'NBP\_39', 'NBP\_40', 'NBP\_41', 'NBP\_42', 'NBP\_43', 'NBP\_44', 'NBP\_45', 'NBP\_46', 'NBP\_47', 'NBP\_48', 'NBP\_49', 'NBP\_50', 'NBP\_51', 'NBP\_52', 'NBP\_53', 'NBP\_54', 'NBP\_55', 'NBP\_56', 'NBP\_57', 'NBP\_58', 'NBP\_59', 'NBP\_60', 'NBP\_61', 'NBP\_62', 'NBP\_63', 'NBP\_64', 'NBP\_65', 'NBP\_66', 'NBP\_67', 'NBP\_68', 'NBP\_69', 'NBP\_70', 'NBP\_71', 'NBP\_72', 'NBP\_73', 'NBP\_74', 'NBP\_75', 'NBP\_76', 'NBP\_77', 'NBP\_78', 'NBP\_79', 'NBP\_80', 'NBP\_81', 'NBP\_82', 'NBP\_83', 'NBP\_84', 'NBP\_85', 'NBP\_86', 'NBP\_87', 'NBP\_88', 'NBP\_89', 'NBP\_90', 'NBP\_91', 'NBP\_92', 'NBP\_93', 'NBP\_94', 'NBP\_95', 'NBP\_96', 'NBP\_97', 'NBP\_98', 'NBP\_99', 'NBP\_100'. It also has a 'Select\_Refiner' dropdown menu with options like 'Ref\_1', 'Ref\_2', 'Ref\_3', 'Ref\_4', 'Ref\_5', 'Ref\_6', 'Ref\_7', 'Ref\_8', 'Ref\_9', 'Ref\_10', 'Ref\_11', 'Ref\_12', 'Ref\_13', 'Ref\_14', 'Ref\_15', 'Ref\_16', 'Ref\_17', 'Ref\_18', 'Ref\_19', 'Ref\_20', 'Ref\_21', 'Ref\_22', 'Ref\_23', 'Ref\_24', 'Ref\_25', 'Ref\_26', 'Ref\_27', 'Ref\_28', 'Ref\_29', 'Ref\_30', 'Ref\_31', 'Ref\_32', 'Ref\_33', 'Ref\_34', 'Ref\_35', 'Ref\_36', 'Ref\_37', 'Ref\_38', 'Ref\_39', 'Ref\_40', 'Ref\_41', 'Ref\_42', 'Ref\_43', 'Ref\_44', 'Ref\_45', 'Ref\_46', 'Ref\_47', 'Ref\_48', 'Ref\_49', 'Ref\_50', 'Ref\_51', 'Ref\_52', 'Ref\_53', 'Ref\_54', 'Ref\_55', 'Ref\_56', 'Ref\_57', 'Ref\_58', 'Ref\_59', 'Ref\_60', 'Ref\_61', 'Ref\_62', 'Ref\_63', 'Ref\_64', 'Ref\_65', 'Ref\_66', 'Ref\_67', 'Ref\_68', 'Ref\_69', 'Ref\_70', 'Ref\_71', 'Ref\_72', 'Ref\_73', 'Ref\_74', 'Ref\_75', 'Ref\_76', 'Ref\_77', 'Ref\_78', 'Ref\_79', 'Ref\_80', 'Ref\_81', 'Ref\_82', 'Ref\_83', 'Ref\_84', 'Ref\_85', 'Ref\_86', 'Ref\_87', 'Ref\_88', 'Ref\_89', 'Ref\_90', 'Ref\_91', 'Ref\_92', 'Ref\_93', 'Ref\_94', 'Ref\_95', 'Ref\_96', 'Ref\_97', 'Ref\_98', 'Ref\_99', 'Ref\_100'.

**c) System-relevant information (Do not change):** This section contains fields for 'System-relevant information (Do not change)' and 'System-relevant counter (Do not change)'.

- a) In section a) *General*, the fundamental aspects for the use of the OPT are defined. The individual fields are described below:

General	
Site/Project/Cohort name:	TEST VERSION
Site/Project/Cohort prefix:	TST
Local subject ID:	Local subject ID
Local sample ID:	Local sample ID
Generated subject ID:	OPT subject ID
Generated sample ID:	OPT sample ID
Subject master data required:	True
Local sample ID required:	True
Label print rows	14
Label print columns	4
Label printing app path	Default

Enter the name of your site.  
Enter your site ID.  
Enter the name of local subject ID on your site.  
Enter the name of local sample ID on your site.  
Enter the name of the generated subject ID.  
Enter the name of the generated sample ID.  
[True; False] - If FALSE, only the local subject ID is required.  
[True; False] - If FALSE, the local sample ID is NOT required.  
Parameter is passed in the URL when calling the web application.  
Parameter is passed in the URL when calling the web application.  
[Default; yourWebURL (e.g., <https://yourWebPath/labels.html>) ]



- **Site/Project/Cohort name (*Change optional as needed*):** This first field is for administration purposes, when multiple instances of the OPT are used simultaneously. A descriptive name for the context can be entered here, for example: "Project XY".
- **Site/Project/Cohort prefix (**mandatory!**):** This field represents the prefix for the generation of the pseudonyms. This must consist of three characters. When using several OPT instances within one context, the prefixes **MUST** differ from instance to instance, otherwise duplicates will inevitably occur. Therefore, in (e.g. multi-site) projects, please always make sure that each prefix is unique!
- **Local subject ID (*Change optional as needed*):** Name of the fields in the OPT that represent the local subject ID. This can be, for example, a health insurance number or another pseudonym.
- **Local sample ID (*Change optional as needed*):** Name of the fields in the OPT that represent the local sample ID. This can be, for example, a number from the registration system or another pseudonym.
- **Generated subject ID (*Change optional as needed*):** Name of the fields in the OPT that represent the generated subject ID. For example, a label from EDC system can be inserted here.
- **Generated sample ID (*Change optional as needed*):** Name of the fields in the OPT that represent the generated sample ID. For example, a label from EDC system can be inserted here.
- **Subject master data required (*Change optional as needed*):** By default, the subject registration requires entering first and last name, date of birth, and locale subject ID. The gender is not mandatory. If "False" is entered in this field, only a local subject ID is required.
- **Local sample ID required (*Change optional as needed*):** By default, the sample registration requires entering the local subject ID, the OPT subject ID the local sample ID, a date, a work package, a timepoint and a sample type. If "False" is entered in this field, the local sample ID will not be required anymore.
- **Label print rows/columns (*Change optional as needed*):** This are parameters that are passed by default when calling the printing process. They can be changed according to the local printing properties. However, this can also be done later.
- **Label printing app path (*Change optional as needed*):** By setting "Default" here, the label-printing-app is called locally from the bundle. Alternatively, a link can be inserted here if the app is located on a webserver. ***Please note that the corresponding data for the label will then be sent over the Internet when the app is called.***

b) In section *b) Sample selection options*, the selection options for the drop-downs are defined. The individual fields are described below:



Sample selection options

Select_WP	Options	Options	Options	Selection samples type	Abbreviation for label printing
WP_2	WP2 COVID19 INF	WP4 1ST DOSE	WP5 3RD DOSE	(NPS) NP SWAB - VIRAL VAR. & RESP. MICRO.	NP swap
WP_4	WP2 FU 3M	WP4 2ND DOSE	WP5 FU 3M	(SP-ST) SERUM/PLASMA - SEROLOGY TESTS	Serum/plasma
WP_5	WP2 FU 6M	WP4 FU 3M	WP5 FU 6M	(SP-IFN) SERUM/PLASMA - IFN-BETA ANALYSIS	Serum/plasma
	WP2 FU 12M	WP4 FU 6M	WP5 FU 12M	(EDTA-CA) PLASMA - CYTOKINE ANALYSIS	EDTA plasma
	WP2 FU 18M	WP4 FU 12M	WP5 FU 18M	(PBMCI) CELLULAR IMMUNITY ANALYSIS 1	PBMC
		WP4 T1 - 3RD DOSE	WP5 BT INF	(PBMCI) CELLULAR IMMUNITY ANALYSIS 2	PBMC
		WP4 T2 - 3RD DOSE	WP5 BI-FU 3M	(EDTA-M) WHOLE BLOOD - EPIGEN. - METHYLATION	EDTA whole blood
		WP4 T3 - 3RD DOSE	WP5 BI-FU 6M	(EDTA-EG) WHOLE BLOOD - EPIGEN. - EXOME & GEN.	EDTA whole blood
			WP5 BI-FU 12M	(SRS) STOOLS/RECTAL SWAB - INT. MICROBIOME	Stolls or Rectal swap
			WP5 BI-FU 18M		

Select\_RegYear

2021  
2022  
2023

- **Select\_WP (mandatory!)**: This field defines the options for selecting the work package. You can customize and extend the terms. Please note to adjust the table area accordingly. If no work packages exist in your context, then you can use any character for selection, for example: "\_".
- **Options (mandatory!)**: According to the selection of the work package, different times can be selected (e.g. WP\_2 → Options for WP2). Please adjust the selection options according to your needs. You can remove the tables and adjust them as you like. Please also do not forget to adjust the "Data validation" for the corresponding drop-down fields if necessary.
- **Selection sample type (mandatory!)**: Here you will find the selection options for the sample type. This can also be customized.
- **Abbreviation for label printing (Change optional as needed)**: Here are the abbreviations for the respective sample types for printing the labels. These may be necessary if a designation is too long and does not fit on a label.
- **Select\_RegYear (Change optional as needed)**: Here you can insert additional years. These are then available on the statistics worksheet and you can filter by them.

*The description for section c) is for information purposes only!*

*By default nothing has to be configured!*

- c) In section c) *System-relevant information*, the counter for the generation of the pseudonyms as well as the password for protecting the worksheets is saved. Please just make sure that the both counter are set on 0 before you use the OPT for the first time. The default-password for protecting the single worksheets and the document structure is "ORCHESTRA". If you need to change the password, then you have to change it for every worksheet, for the document-structure as well as here! Please make sure to note down the password. The password cannot be recovered in case of loss!



System-relevant information (Do not change!)		
ORCHESTRA subject ID counter:	0	System-relevant counter, do not change!
ORCHESTRA sample ID counter:	0	System-relevant counter, do not change!
Workbook & Worksheet protection password:	ORCHESTRA	

## 4. General information

**Safety note:** Despite the implemented security measures in OPT, it's important to note that a spreadsheet program does not provide high-level data security. Therefore, caution must be exercised when using OPT. Regular backups are strongly recommended to mitigate any potential data risks. Safeguarding your data through frequent backups ensures that you can restore it in the event of any unforeseen issues or data loss. Protecting the integrity and confidentiality of your data should also be a top priority.

### Field input:

When using the LibreOffice version, please note that when you enter data into a field, the input is not recognized until you click out of the field after you have finished entering.

### Date format:

When entering the date in a data field, the following formats can be entered depending on whether you use the Excel or LibreOffice version.

The allowed input types are shown in the table on the left.

Date format	Excel	LibreOffice
dd.mm.yyyy	yes	yes
d.m.yyyy	yes	yes
d.m.yy	yes	yes

## 5. User interface and structure

In the following, first the structure of the tool and then the user interface will be explained.

The tool consists of ten individual worksheets. These are:

- Subjects
- Samples
- Import Subjects
- Import Samples
- Subject Data
- Sample Data
- Statistics
- Quick User Guide
- Info
- Configuration (*hidden*)

Use the Navigation bar at the bottom to see which worksheet you are on. Here it is also possible to navigate between the individual worksheets. When you open the tool, the last used worksheet is always displayed.



## 5.1 Subjects

The Subjects worksheet is structured into three windows. The first window "Subject details" contains a fillable form. This is where the search will take place later. The second window "Search results" shows a table, which is automatically filled by the tool during a search. In the third window "Options" there is a button to import subjects and another button to export all registrations for the subjects as well as for the samples in this tool in a new Excel/LibreOffice document.

**Subject details**

First name:   
Last name:   
Gender:   
Date of Birth:   
Local subject ID:   
Orchestra subject ID:

**Search results**

First name	Last name	Gender	Date of birth	Local subject ID	Orchestra subject ID

Matches:

**Options**

Note: Please ensure that backups are made regularly.

**ORCHESTRA**  
Pseudonymization Tool

## 5.2 Samples

The samples page is structured analogously to the subject page and has a very similar functionality. Only the buttons are slightly different. In the first window at the "Search details" there is another button, which serves for the Data-Matrix Code generation.





### 5.3 Import Subjects

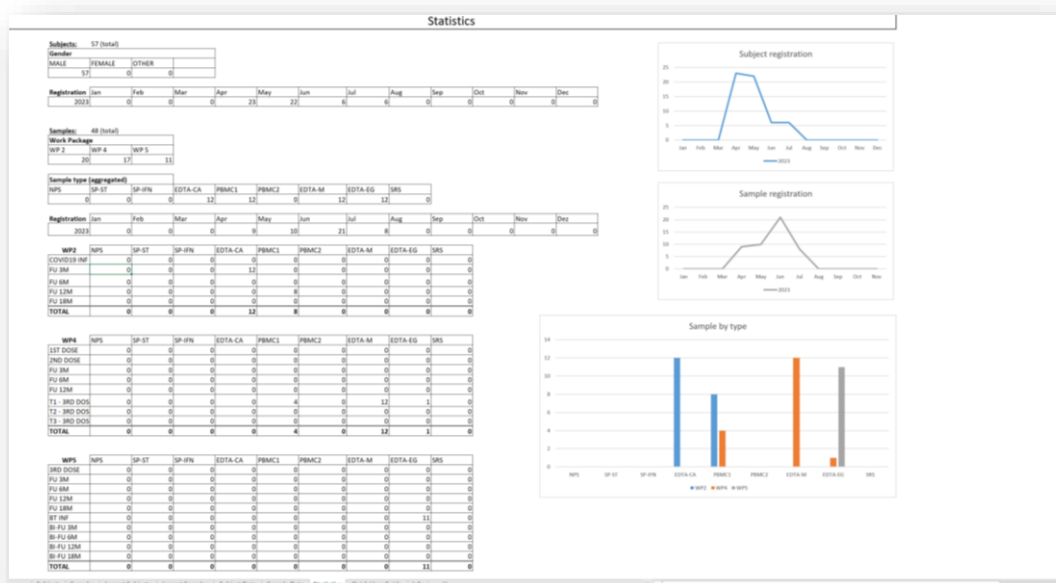
[illegible]

## 5.4 Subject Data and Sample Data

All registrations of subjects and samples are stored in these worksheets. In addition, the information that was entered in the [Adding additional subjects or samples](#) process is displayed here.

## 5.5 Statistics

On the Statistics Worksheet, the user gets a comprehensive overview of the data registered in the tool. Therefore, the data is broken down according to its time of registration, type and quantity.



## 5.6 Quick User guide

This document is a detailed description of the objectives, the structure and the functionalities of the tool. In addition, we have summarized the relevant core functionalities briefly and clearly in the "Quick guide" worksheet.

The screenshot displays the 'Quick User Guide' worksheet, which provides detailed instructions for using the ORCHESTRA tool. The guide is organized into several sections:

- Search subject:** Instructions on how to search for subjects, including filling in fields and clicking the 'Search' button.
- Export function (Backup):** Instructions on how to export data to a new Excel document, including a warning about data loss and a note that all data is exported to a separate file.
- Import data:** Instructions on how to import data into the tool, including a warning about data loss and a note that the reason for non-import is displayed in the 'Error Message' column.
- Migration:** Instructions on how to migrate data from one version of the tool to another, including a warning about data loss and a note that the reason for non-import is displayed in the 'Error Message' column.
- General info:** Information about the tool, including the date format, sample type codes, and a list of sample types.
- Add further information:** Instructions on how to add further information to the tool, including a warning about data loss and a note that the reason for non-import is displayed in the 'Error Message' column.

## 5.7 Info

If you need help or have any comments on how we can better customize the tool to your needs, please do not hesitate to contact us via the contacts on the "Info" worksheet. We appreciate any feedback!



You will also find the current version number of the tool you are working with as well as an update history.

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<b>About</b>
Created for: Microsoft Excel Version: 1.0
<b>Update history</b>
<b>Version 1.0</b> First public release.

## 6. Functions

In the following, the individual functionalities of the tool are explained in detail.

### 6.1 Search subject

Searching for subjects is one of the basic functionalities of the tool. This is a mandatory requirement for the registration of subjects. To perform a search, you must be on the "Subject" worksheet. In the first window "Search details" you will find a fillable form. Here you can insert the attributes of the subject you want to search for. You can search with one or more attributes. The use of wildcards (\*) can be useful here. You can use them anywhere in the entered attribute.

<b>Subject details</b>	
<b>First name:</b>	Richar*
<b>Last name:</b>	
<b>Gender:</b>	
<b>Date of Birth:</b>	
<b>Local subject ID:</b>	
<b>Orchestra subject ID:</b>	
<input type="button" value="Clear"/>	<input type="button" value="Search"/>
<input type="button" value="Create"/>	

For example, if you forget whether the person's name is *Richard* or *Richardt*: "Name: Richar\*".

To search for a specific subject, it is useful to do this using the unique ORCHESTRA ID or local ID. With the other fields, such as the name or the gender, it cannot be guaranteed that the searched person can be found clearly.



After you have filled in the form, confirm the search by clicking on the "Search" button. Now the search results should be displayed in the "Search Results" window.

Search results

First name	Last name	Gender	Date of birth	Local subject ID	Orchestra subject ID
RICHARD	TEST	MALE	01.01.1990	123456	TSTP0000058

Matches:

## 6.2 Create subject

When a new subject is registered, a new unique ORCHESTRA pseudonymization ID will be created for them and their identification data will be stored. This creates a link between the subject and an ORCHESTRA-wide unique ID. Then the generated ID can be used in the context of other investigations and evaluations in the ORCHESTRA project in a data protection compliant way, without anyone knowing the identity behind the ID.

Registering a new subject is done on the "Subjects" worksheet in three steps. Please do not wonder that the "Create" button is disabled. It will be enabled automatically after the *Step 2* of the following process.

### Step 1: Fill out the form

In the first window "Search details" you will find a form where you must fill in all relevant information to identify a subject.

The individual fields are defined as follows:

- First name: The subject's first name.
- Last name: The subject's last name.
- Gender: The gender of the subject.
- Date of birth: The date of birth of the subject.
- Local subject ID (designation may differ): The subject's local ID, which is used in daily practice in the hospital or in the labs to identify the subject uniquely.
- ORCHESTRA ID: The field remains empty. The ID is generated automatically and completed after registration.



**Important:** Please note that the OPT subject ID field must not be filled in. The ID is automatically generated and assigned to the subject when registering the subject as described above. Therefore, please leave this field blank.

### Step 2: Search for the subject

Confirm the above input by clicking on the "Search" button. This will trigger the search. The search results are then displayed in the "Search Results" window. As this is a new registration of a subject,

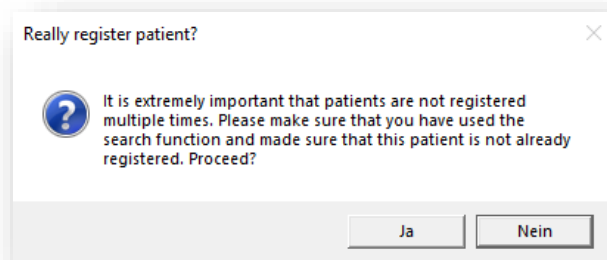


there must be no match, as each subject may only be registered once. Therefore, please make absolutely sure that this subject is not already registered.

By performing the search, the "Create" button will be enabled.

### Step 3: Registration of the subject

After making sure that the subject has not been registered yet, you will be able to register the subject by clicking on "Create". The tool will prompt you in a pop-up window to check your input for correctness.



Please make sure that all information is entered correctly in the form. Also make sure that the spelling is correct.

Then confirm the message in the pop-up window. This completes the registration process. The automatically generated OPT subject ID should now be displayed in the form.

Now you can create another subject, clear the fields of the form by clicking "Clear" and search for another subject or just close the tool.

## 6.3 Import subjects

If you already have a data set with subjects for whom you need unique ORCHESTRA IDs, you can generate them automatically. The process of importing data consists of only two steps.

### Step 1: Pasting the data

To import data into the tool, switch to the "Import Subjects" worksheet. There you will find a table with many columns. The columns with the colored headers are the default fields, which are also used in the normal registration of a subject. All other columns are additional and can be customized (add, delete, rename) by adjusting the "Subject Data" worksheet, since they are mirrored from there.

Copy the data you want to import into the corresponding column. Please ensure that the required fields are filled in for each subject.

The required fields are:

- First Name
- Last Name
- Date of Birth
- Local subject ID (e.g. Health insurance number, etc.)



Please note that it is not mandatory to specify the gender of a subject, but if an entry is made, it must correspond to the options "male", "female" or "other", otherwise it will not be recognized by the tool and import will not be possible.

## Step 2: Perform the import

When you have pasted your data, switch back to the "Subjects" worksheet. Click on "Import Subjects" in the "Options" window. This will start the import.

After the import is complete, a pop-up window will appear showing how many subjects have been imported.

In the best case, all subjects are imported, and the process is completed.

If subjects were not imported, they will remain in the "Import Subjects" worksheet. If this is the case, check the following points:

- 1) A mandatory field has not been filled in
- 2) The Date of Birth does not correspond to a valid format.
- 3) A gender has been entered for a subject that does not match the expected value.
- 4) A subject with the same local ID is already registered in the tool.

## 6.4 Search samples

The search for samples is basically the same as the search for subjects. It is also a mandatory requirement for the registration of sample. To perform a search, you must be on the "Samples" worksheet. In the first window "Search details" you will find a fillable form (For the detailed description of the fields: See [Create Sample](#)). Here you can insert the attributes of the samples you want to search for. You can search with one or more attributes. The use of wildcards (\*) can be useful here. You can use them anywhere in the entered attribute.

To search for a specific sample, it is useful to do this using the unique ORCHESTRA ID or local ID. With the other fields, such as the Sample-Type or the Timepoint, it cannot be guaranteed that the searched sample can be found clearly.

After you have filled in the form, confirm the search by clicking on the "Search" button. Now the search results should be displayed in the "Search Results" window.

Note: While searching for samples on a specific subject, you may be returned a larger number of search results, as a subject may have many samples.

## 6.5 Create samples

When a new sample is registered, a new unique OPT sample ID is generated for it. Since the OPT subject ID which was generated for the previously registered subject must be entered when registering the sample, a link between the subject and the sample is established and stored on a pseudonymized basis. Then the generated OPT sample ID can be used in the context of other studies and evaluations in the ORCHESTRA project in a data protection compliant way, without anyone knowing the subject to that the sample is assigned.

Registering a new sample is done on the "Samples" worksheet in three steps. Please do not wonder that the "Create" button is disabled. It will be enabled automatically after the *Step 2* of the following process.

## Step 1: Fill out the form



In the first window "Search details" you will find a form where you must fill in all relevant information to identify the sample.

The individual fields are defined as follows:

- Local subject ID (if available; designation may differ): The subject's local ID, which is used in daily practice in the hospital or in the labs to identify the subject uniquely.
- OPT subject ID: Insert here the OPT subject ID of the subject belonging to the sample, which was generated during the registration of the subject. This is necessary to have a link to the subject from which the sample was taken.
- Local sample ID (if available): The sample's local ID, which is used in daily practice in the hospital or in the labs to identify the samples uniquely.
- Date: The date of taking the sample.
- Work package: By using the work packages field, a sample can be assigned e.g. to a work package in the research project.
- Sample type: Select one of the displayed options (options can be adjusted, see: configuration).
- Timepoint: Select one of the displayed options (options can be adjusted, see: configuration).
- OPT sample ID: The field remains empty. The ID is generated automatically and completed after registration.

### Step 2: Search for the sample

Confirm the above input by clicking on the "Search" button. This will trigger the search. The search results are then displayed in the "Search Results" window. As this is a new registration of a sample, there must be no match, as each sample may only be registered once. Therefore, please make absolutely sure that this sample is not already registered.

By performing the search, the "Create" button will be enabled.

### Step 3: Registration of the sample

After making sure that the sample has not been registered yet, you will be able to register it by clicking on "Create". The tool will prompt you in a pop-up window to check your input for correctness.

Please make sure that all information is entered correctly in the form. Also make sure that the spelling is correct.

Then confirm the message in the pop-up window. This completes the registration process. The automatically generated OPT sample ID should now be displayed in the form.

Now you can create another sample, clear the fields of the form by clicking "Clear" and search for another sample or just close the tool.

## 6.6 Import samples

The import of samples basically works in the same way as the import of subjects.

### Step 1: Pasting the data

To import data into the tool, switch to the "Import Samples" worksheet. There you will find a table with many columns. The columns with the colored headers are the default fields, which are also used in the normal registration of a sample. All other columns are additional and can be customized (add, delete, rename) by adjusting the "Sample Data" worksheet, since they are mirrored from there.



Copy the data you want to import into the corresponding column. Please ensure that the required fields are filled in for each sample.

The required fields are:

- Local subject ID
- OPT subject ID
- Local sample ID
- Date
- Sample type\*
- Timepoint

*\*Please only enter the abbreviation here. You can find them in the Quick User Guide or in the Samples worksheet in the drop-down menu. E.g.: "NPS" for "NP swap".*

Please note that the entered Local Patient ID and OPT subject ID must already exist in this OPT. This will be checked by the OPT during import. If they do not exist, the import will fail.

## Step 2: Perform the import

When you have pasted your data, switch back to the "Samples" worksheet. Click on "Import Samples" in the "Options" window. This will start the import.

After the import is complete, a pop-up window will appear showing how many samples have been imported.

In the best case, all samples are imported, and the process is completed.

If samples were not imported, they will remain in the "Import Samples" worksheet. If this is the case, check the following points:

- 5) A mandatory field has not been filled in
- 6) The Date does not correspond to a valid format.
- 7) A corresponding local subject ID or OPT subject ID does not exist.
- 8) A sample with the same local ID is already registered in the OPT.

## 6.7 Generate Labels

The OPT supports the generation of the following codes for the labels for the sample vials:

- QR-Code
- DataMatrix-Code
- Barcode

A label contains the following information:

- Code: The Code contains the OPT sample ID. This can be read by the Code scanners of the labs.
- Sample type: The sample type of the sample contained in the vial or the analysis that is performed on it.
- ORCHESTRA subject: The OPT subject ID of the subject from whom the sample was taken.
- Timepoint: The time at which the sample was taken.

All this information is based on the entries made when the sample was registered.





There are two ways to create a label: **One-by-one** via the sample worksheet or **bulk printing** after import.

#### **One-by-one:**

The generation of a label with a Code is done on the "Samples" worksheet. According to the initial situation, there are two possibilities:

- 1) You have just registered a sample. The form in the "Search details" window is still filled completely and unchanged. The OPT sample ID has already been generated.
- 2) If the form in the "Search details" window is empty, you must run a search corresponding to [Search sample](#) by filling in the fields in the form and start the search by clicking on "Search". In the "Search Results" window you will see the search results. Select the sample for which you want to create a label by clicking on "Select" next to the corresponding entry. Now the form in the "Search details" window is automatically filled with all relevant information.

Then you only need to click the "Print" button. Your standard browser will open with the corresponding application, where our Code generator is running. Now you can print the generated labels directly.

#### **Bulk printing:**

After importing samples, the tool asks if you want to print the corresponding labels. If you confirm this, a separate Excel list with all the required information is generated and your default browser opens and displays the label generator application.

Now, just copy and paste the contents of the Excel into the application. Click on "Refresh Labels" and the labels will be generated. Now you can print the generated labels directly.

### **6.8 Adding additional subjects or samples information**

Depending on the needs, additional information that is not covered by the fields in the forms on the Subject and Samples worksheets can be stored in the tool. For this purpose, the tool offers the option of adding individual columns on the "Subject Data" and "Sample Data" worksheets and adding the information on the corresponding subjects and samples.

The process is identical for adding information for subjects and samples.

Information is added as requested in the "Subject Data" or "Samples Data" worksheet. In the gray locked area are all registrations that have already been made. You can insert any number of attributes in the remaining open columns.

If you want to add information about a specific subject or a specific sample, you can at first perform a search based on the OPT subject ID or OPT sample ID by using the filter in the related column.

### **6.9 Export subject and samples (backups)**

Exporting subject and samples data from the ORCHESTRA pseudonymization tool serves as a backup measure. All data entered during the registration of subjects and samples as well as the additional information in the individually created columns are exported to a separate file.

The export can be performed on both the "subjects" and "samples" worksheets by clicking on the "Export all subjects and samples" button.



A file will be generated and saved immediately next to the OPT in the Backup-file.

## 7. References



***Important:** Please make sure that the export is stored separately from the tool in another place to have the data backed up in case of possible problems with the drive.*

[1] ORCHESTRA [Online]. Available: <https://orchestra-cohort.eu/>