# Objectives

1. Determine the architecture of the solution extended according to the current requirements of the BDR variant:

* convenient for the operation of the base;
* adequate for medical purposes;
* respecting the legal conditions for the management of personal data;
* maintaining the versatility of BDR in relation to diverse fields of application.

1. Design the scheme and functionality of the new database elements:

* Complete separation of the personal and medical data section (hereinafter referred to as medical data – M) from the entity data, measurement samples, measurements and related files (hereinafter referred to as the central BDR or cBDR);
  + Revise the existing elements of the BDR scheme in the light of the above separation;
  + Defining the functionality of the medical part – including its elements referring to the central functionality of the BDR;
  + Ensuring that the set of measurement session files stored in the cBDR will not result in any personal or medical data appearing in the cBDR;

1. Supplement/reorganize cBDR functionality:

* Adequate possibilities of recording information about the measurement configuration:
  + Opting out of the Measure dependent entities;
  + Associate the Konfiguracja\_pomiarowa entity with the Session entity (many-to-many relationship);
  + Revise the current structure of the Konfiguracja\_pomiarowa entity (Name, Description, Type, <Related Files>)
  + Determine whether the database will store only the names or also the specifications of individual measurement configurations;
  + Elimination of support for the current convention that packed information about measurement configurations into a string stored in the Tags field.
* Ensuring complete possibility of correcting data collected in cBDR:
  + Ability to delete erroneously entered data;
  + Ability to modify the original assignment Session -> Grupa\_sesji;
  + Other, requested by users;
  + (it is worth considering whether the above-mentioned additions could be created as a local, two-layer application, so that they would not require the creation of appropriate Web Service operations).
* Functionality that facilitates the introduction of new sessions to the database:
  + data recovery from .enf files indicated by the operator;
  + determining the set of information to be extracted and the scenario for its transmission.

# Schematic diagram for BDR medical component

# Changes in cBDR

Remove the "medicine" permission.

# Modifications to data viewing and editing scenarios

The following changes will be made to ensure a genuine separation of the medical and central BDR sections.

The current scenario of introducing new sessions will remain unchanged in the sense that assigning a session to a performer or modifying this assignment will be required (and at the same time possible) only after the session has been created. However, due to the necessity to deprive cBDR of data identifying a person, the Performer entity will be reduced to the numerical identifier of the performer and, possibly, also the year of birth and gender of the performer. In addition, as before, it will be allowed to create a new session and place its content in the database without linking it to any instance of the Performer entity.

Other necessary personal data – first and foremost: name and surname – will be stored in the medical component. Due to the one-way possibility of associating data between two databases and taking into account access control mechanisms, only a medical database will meet the criteria of a personal data set and as such will be subject to appropriate personal data protection procedures.



At the same time, in the medical part, it is necessary to have elements that will provide substantively consistent (but not necessarily exhaustive) support for the recording of patients' medical data. The outline of the diagram, along with the indication of the above-mentioned points of contact between the bases, is shown in the figure below. The frequencies for associations spanned between bases have already been corrected here to those assumed by the conceptual scheme.



## Assumed scenarios of editing and access to data covering both modules of the database

Due to the unidirectional nature of the relationship between the M and cBDR bases, it is assumed that:

* the cBDR database can be used fully autonomously in terms of its functionality;
* the M database in the selected functional elements selected from the point of view of ensuring consistency and pragmatic completeness of data will require online interaction with the cBDR database so that the necessary links leading from M to cBDR are created.

### Creating users

Currently, there are no facilities in the client part for creating new users in cBDR (users are currently added by the database administrator, via the appropriate SQL command.

Regardless of the target support in the GUI layer or the lack thereof, it is assumed that the association of the user of the M database with the user of the cBDR database will be mandatory when creating the user of the M database.

### Onboarding a new patient

The functionality requires the user of the M database to log in and have the right to add data in the M database.

There are two options that can be considered here:

* forcing the grouping of medical sessions to cBDR performers: each session created for medical purposes is assigned to exactly one Performer instance on the cBDR side. This means that users who only have access rights to cBDR gain the ability to associate all sessions of a given performer with each other (if they have been granted read rights, of course).
* not forcing grouping of sessions on the cBDR side: the Study-Session association stored on the M side is the only path that allows you to associate a patient with a set of sessions. In this case, cBDR itself does not have any information that would allow us to associate a set of sessions as belonging to the same person (performer).

Since in both of the above-mentioned variants we will require the assignment of sessions to the patient, they will differ only in the necessary data structures and actions performed in the background by the client software.

Leveraging the existing functionality of cBDR services:

* CreatePerformer(performerData : PerformerData) : int  
  called when there is no performer in the cBDR corresponding to the patient's medical card created in the database; if the medical functionality does not take care of creating such an entity, it will be done without any loss to the information content of the medical part, however, sessions created in cBDR documenting the examination of a given patient will not be grouped on the cBDR side as belonging to the same Performer.
* CreateSession(labID : int, motionKindName : string, sessionDate : DateTime, sessionName : string, tags : string, sessionDescription : string, sessionGroupIDs : int[]) : intcan be called by the medical component when creating an instance of the Investigation entity; the returned value becomes a foreign key leading from the Investigation entity to the Session entity;

# Open Issues