Jihočeská univerzita
v Českých Budějovicích
University of South Bohemia
in České Budějovice


# Protocol manager

# BioWes

www.biowes.org

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Technology Agency
of the Czech Republic

# Introduction

The purpose of this manual:

- Basic description of the software for local management of protocols and protocol templates
- Description of the process of protocol template designs
- Description of the process of protocol generation

Development team:

- Institute of complex systems, FFPW, University of South Bohemia in Ceske Budejovice
  - http://www.frov.jcu.cz/en/sks-frov-ju/skola-komkplexnich-systemu
- dataPatner Ltd.
  - http://www.datapartner.cz/

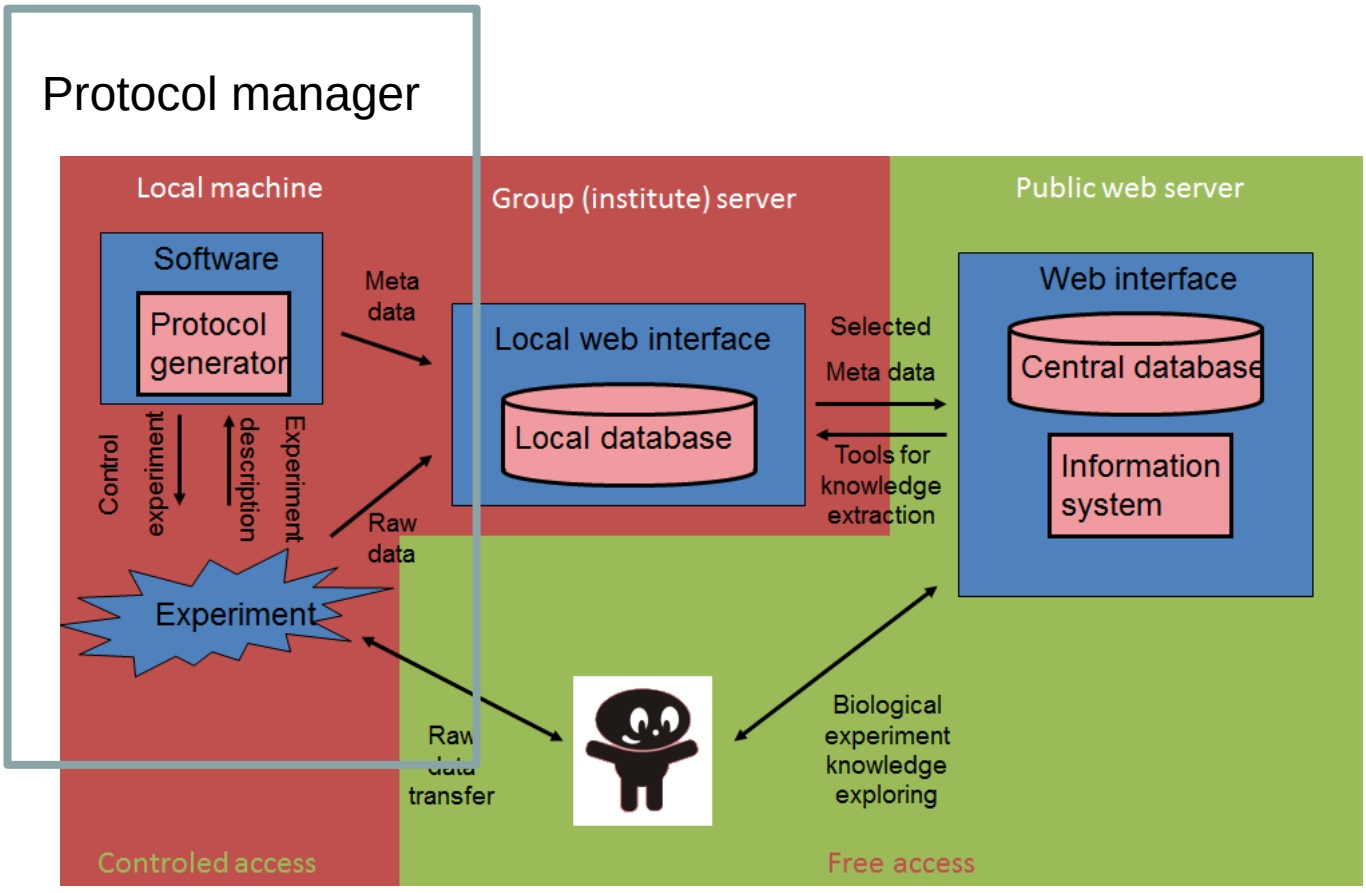
# Protocol designer

Outline:

- Protocol manager
  - Software GUI
  - Protocol templates
  - Protocols
- How to create and edit protocol template – Protocol designer
  - Components
  - Protocol design
  - Standardization
- How to create and edit protocol from template – Protocol generator
  - Plug-ins
  - Experimental data association

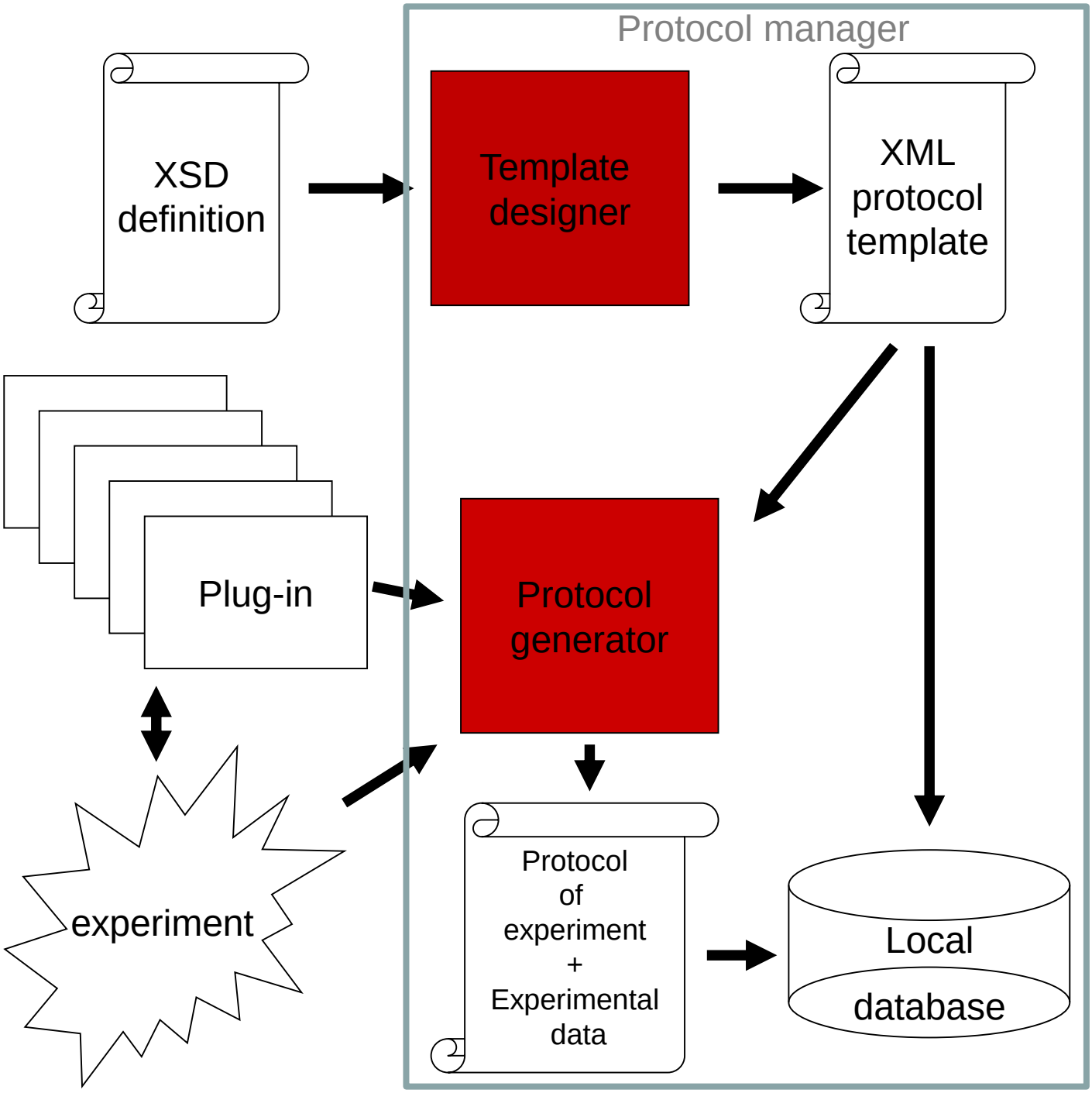
# Protocol manager

- Protocol manager is stand alone application dedicated for the design of experimental protocol templates and management of experimental protocols.
- It is a part of BioWes solution. The software is operated at local computers (computers connected to measurement devices) connected to the local server.
- Contains two basic tools
  - Protocol designer
  - Protocol generator

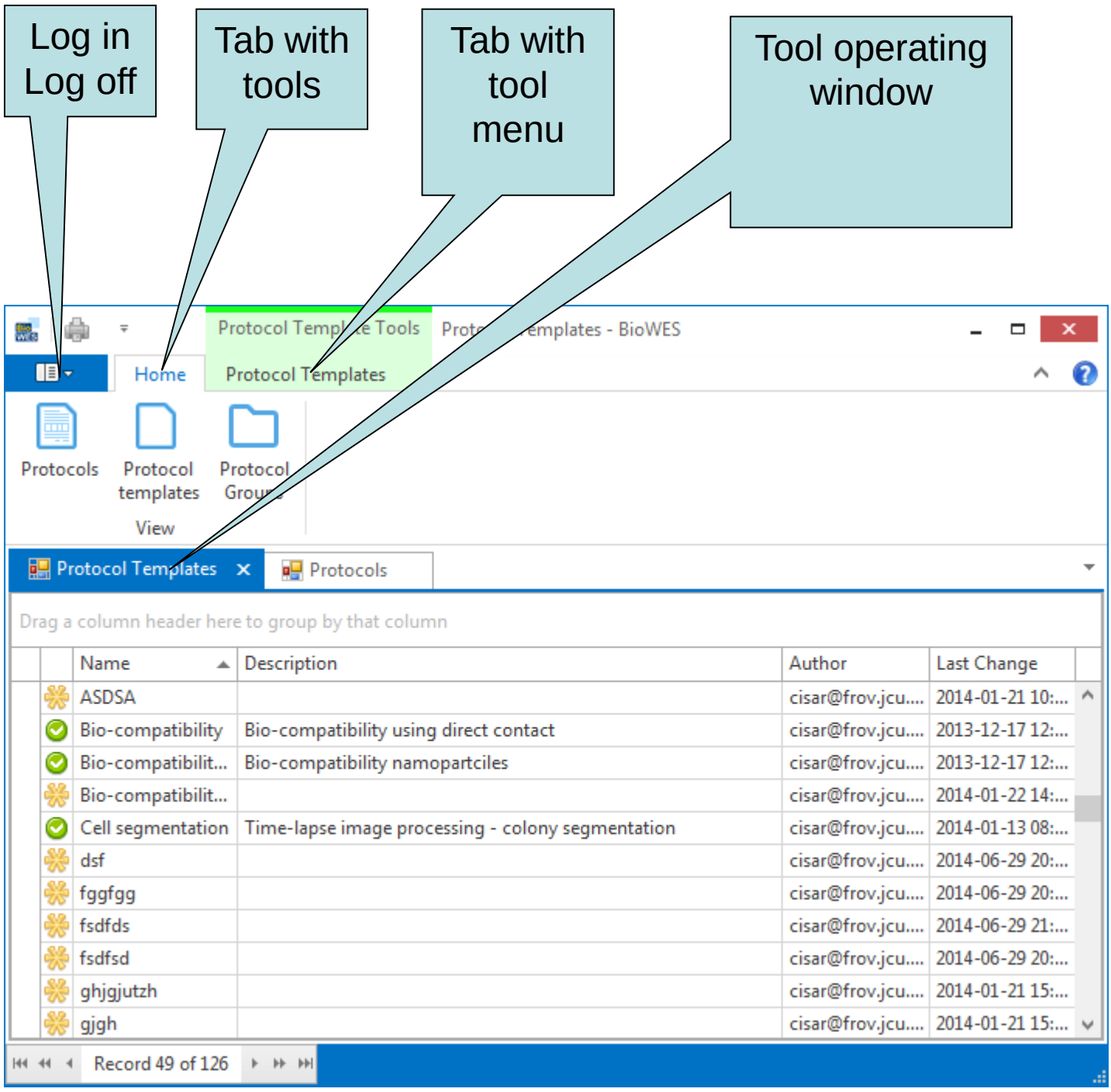


# Protocol manager

The role of Protocol manager in the system of experimental data management.

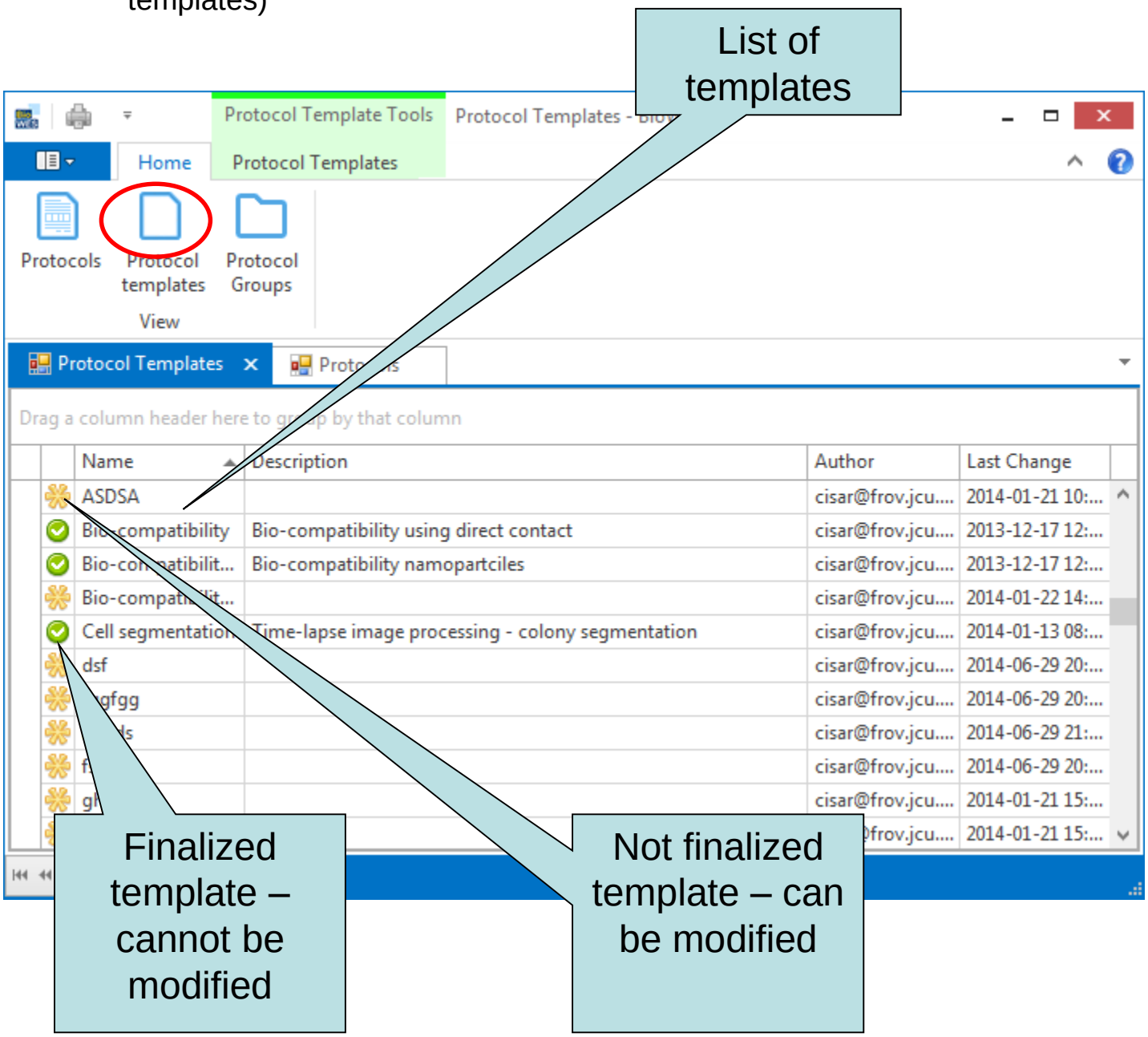


# Protocol manager - GUI



# Protocol templates

- To manage protocol templates, click on Protocol templates on Home tab
- The list of user templates is listed (templetes of the user or shared templates)



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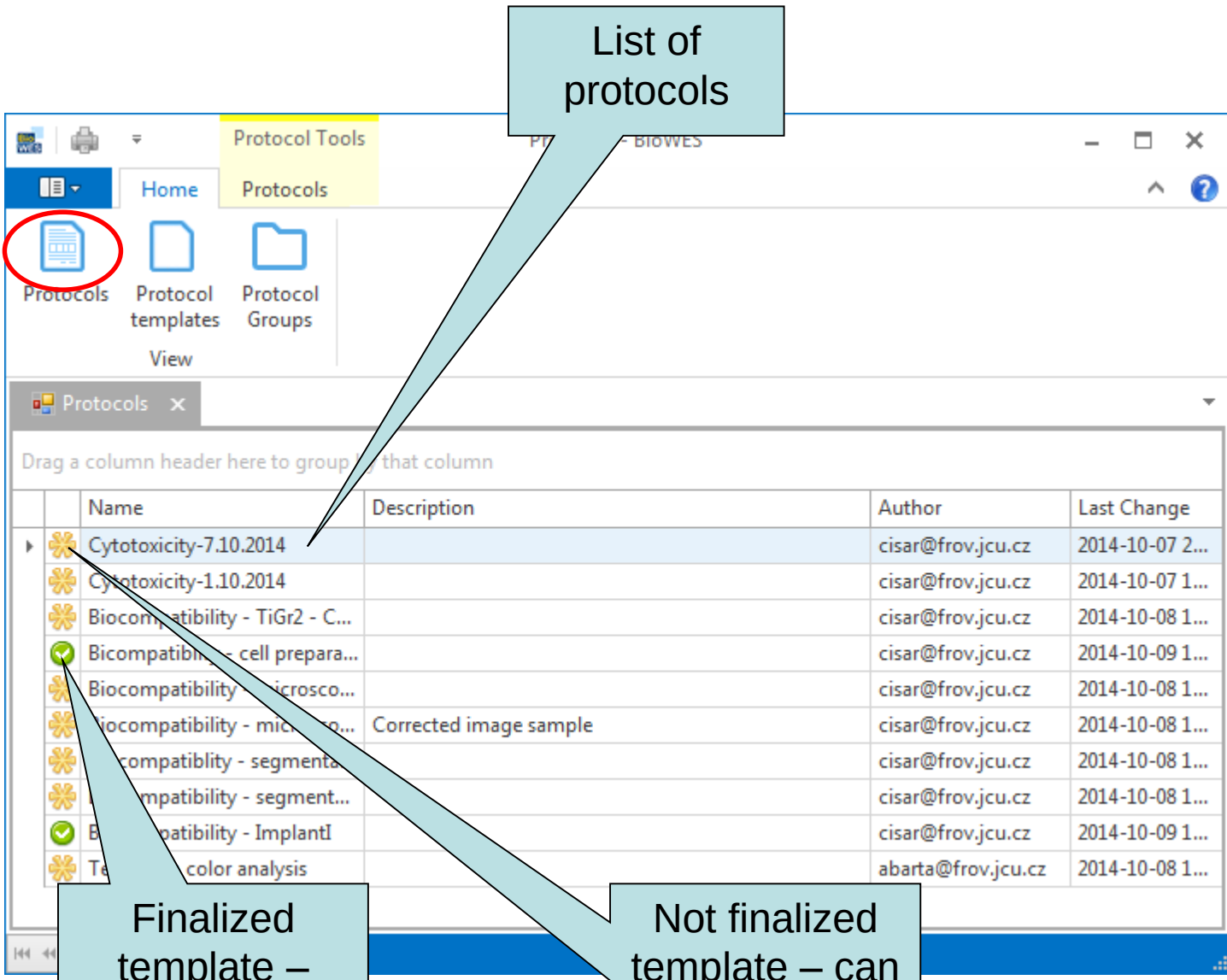
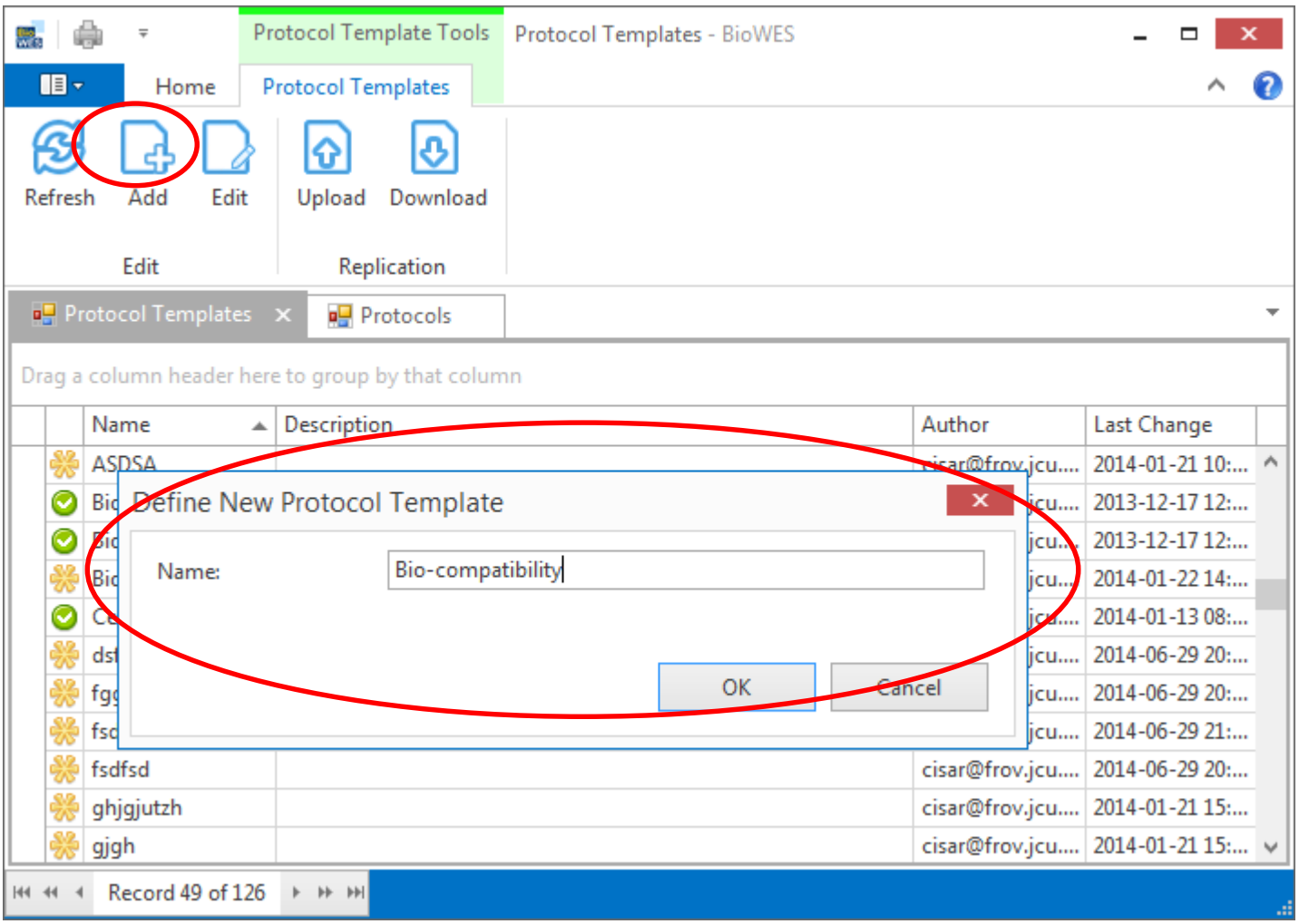


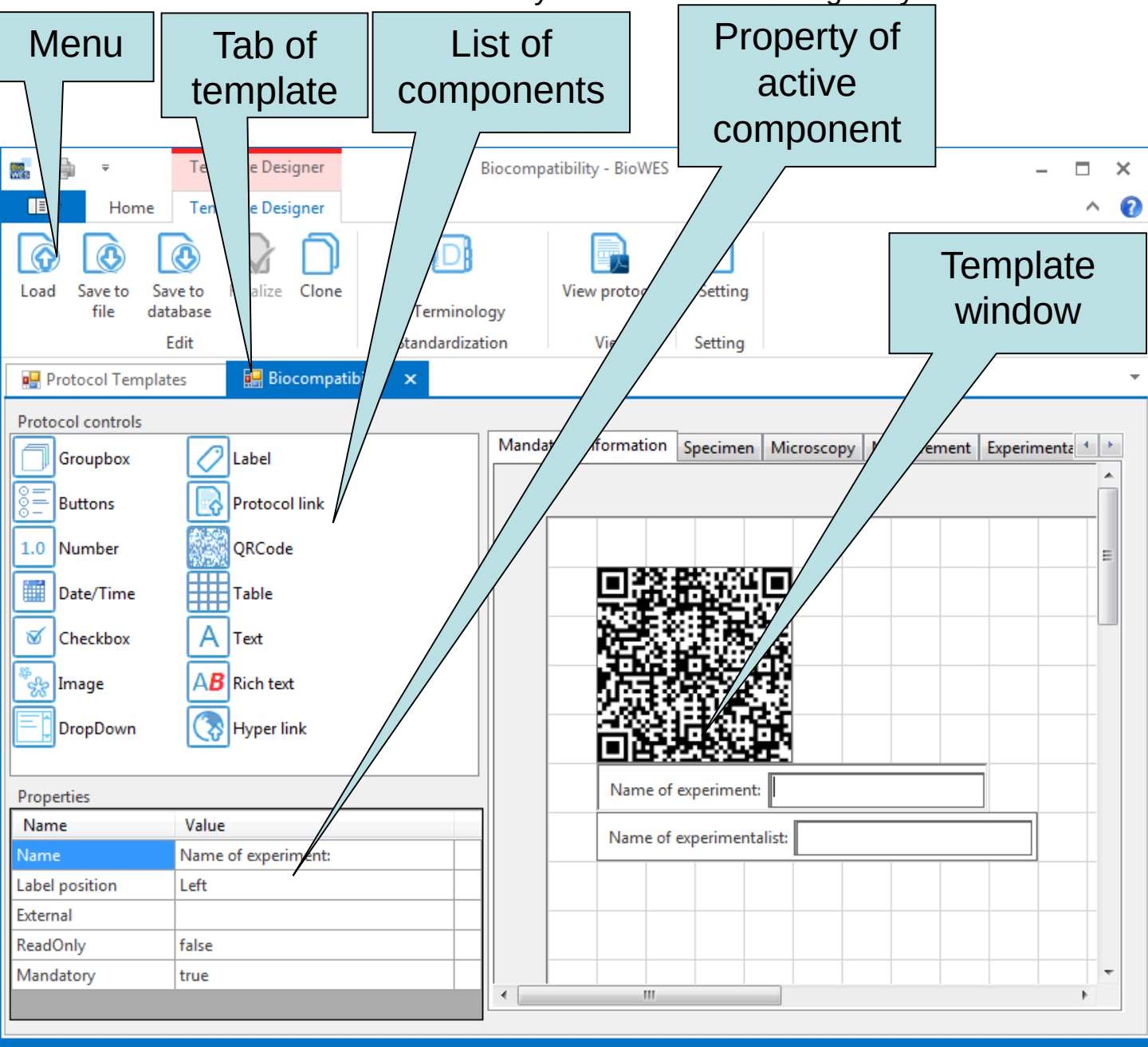
# How to create new protocol template – template designer

1. Click on Add on Protocol templates tab
   - Protocol deginer tool is executed
2. Define the name of new protocol template



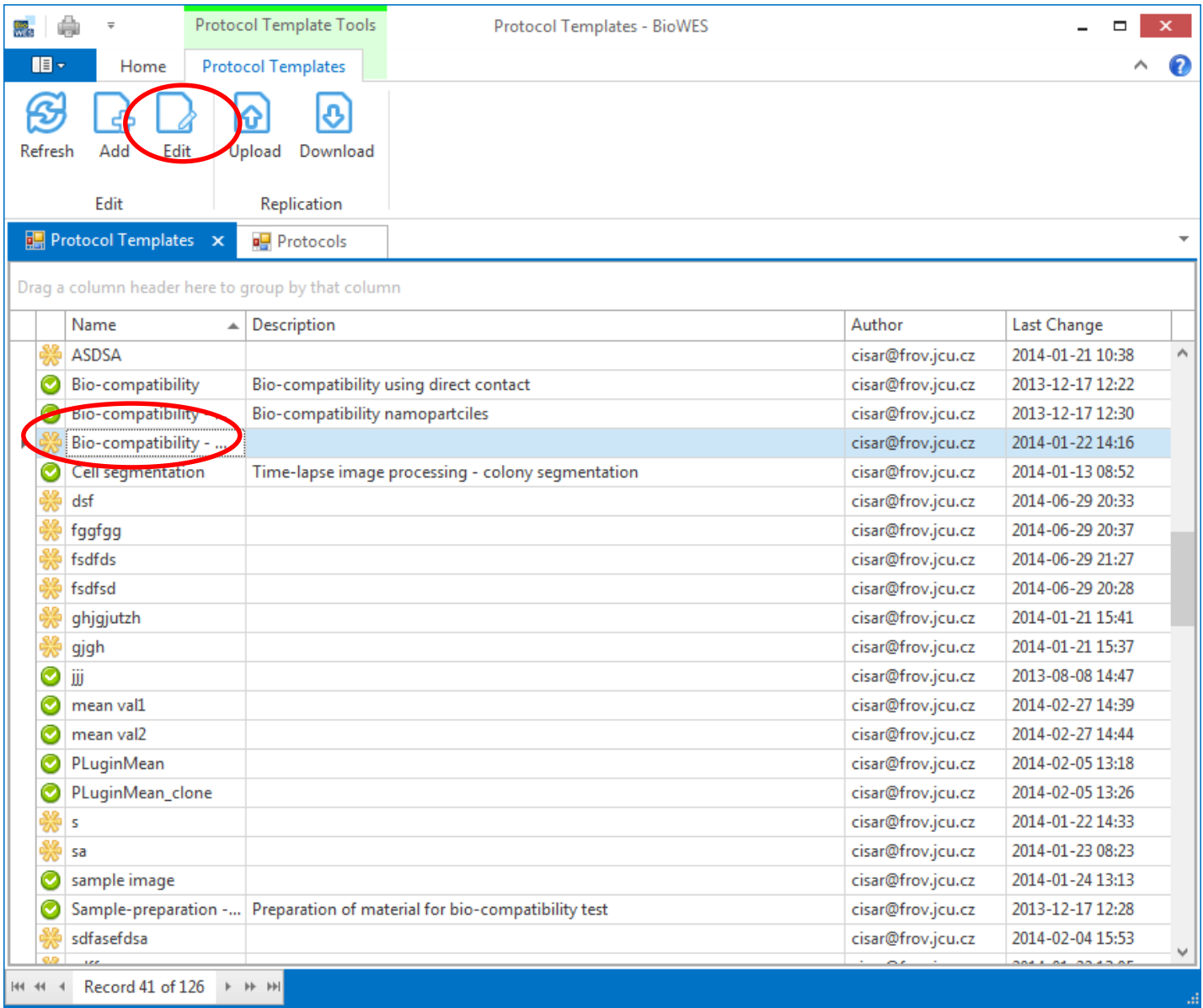
# How to create new protocol template – template designer

- Protocol template designer is shown in the main window
- User can start to edit template by adding and modifying the components
- First and last tab are mandatory and can not be changed by user



# How to edit protocol template – template designer

1. Click on Edit on Protocol templates tab
   - Protocol deginer tool is executed
2. Double click on template in the list
   - Finalized templates can not be modified



# Design protocol template – template designer

- Protocol template designer allow the user to design new or modify existing protocol
- Protocol template should contain all the important information about setting of experiment:
  - Setting of devices
  - Initial conditions
  - Illustrative samples
  - Important steps of experiment
- The user should divide the template into logical part that corresponds to the different areas of the experiment
- The information in the template should allow to repeat or reproduce the experiment

# Design protocol template – template designer

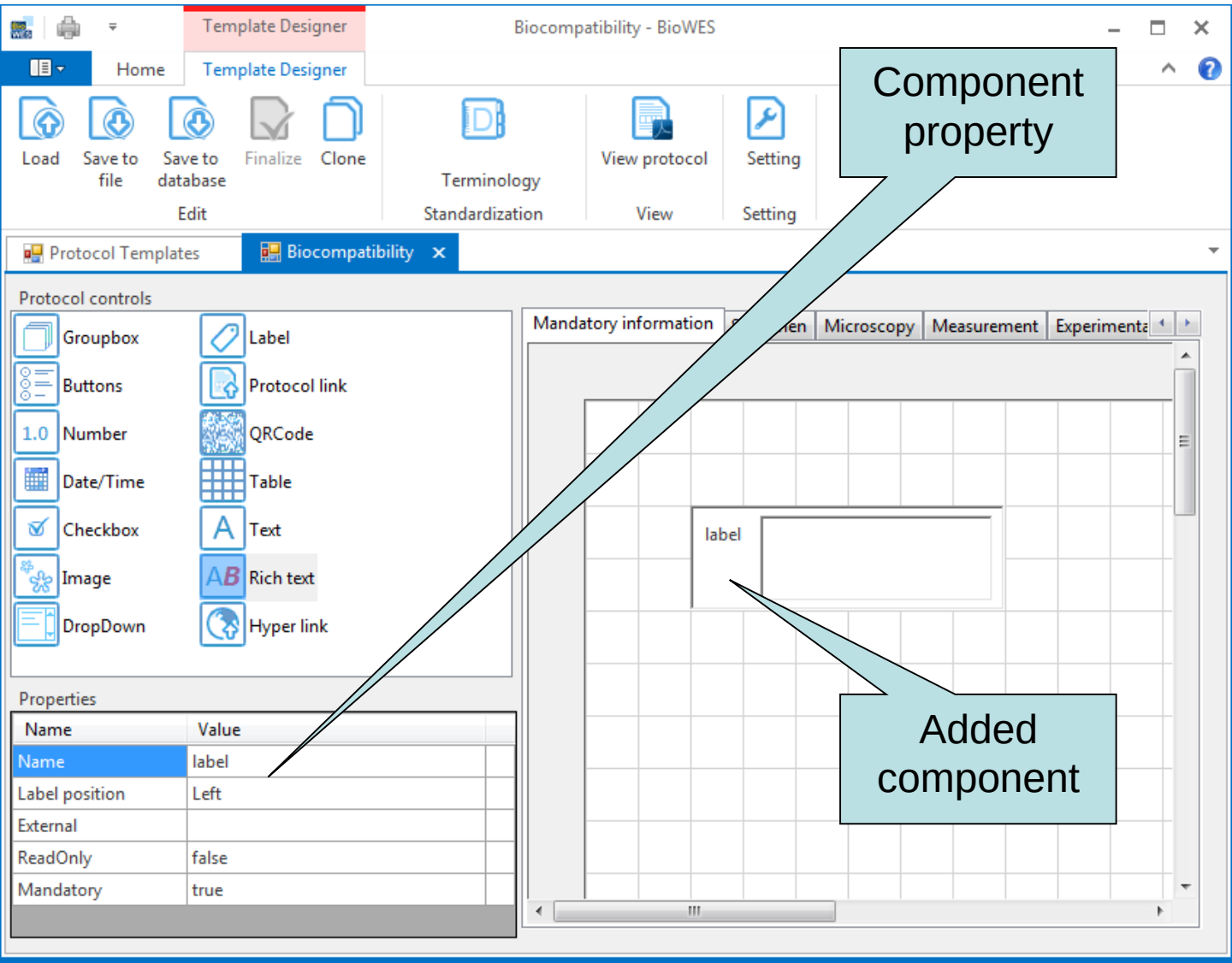
- The protocol is divided into four main parts
  - Mandatory information (user can not change it – describes basic information for experiment identification) – can be changed by user
    - QR code
    - Name of experimentalist
    - Name of protocol
  - Protocol – user defined components
  - Information about the experimental data – can not be changed by user

# Design protocol template – template designer

- Components
  - The designer is using 14 basic components for protocol definition
    - User input
      - Buttons
      - Number
      - Checkbox
      - Date/time
      - DropDown
      - Table
      - Text
      - Rich text
    - Informative
      - Groupbox
      - Image
      - Label
      - QR code
    - Links
      - Hyper link
      - Protocol link
  - The components are internally described by XML language
  - Final protocol template is stored into XML file and can be open by any XML editor

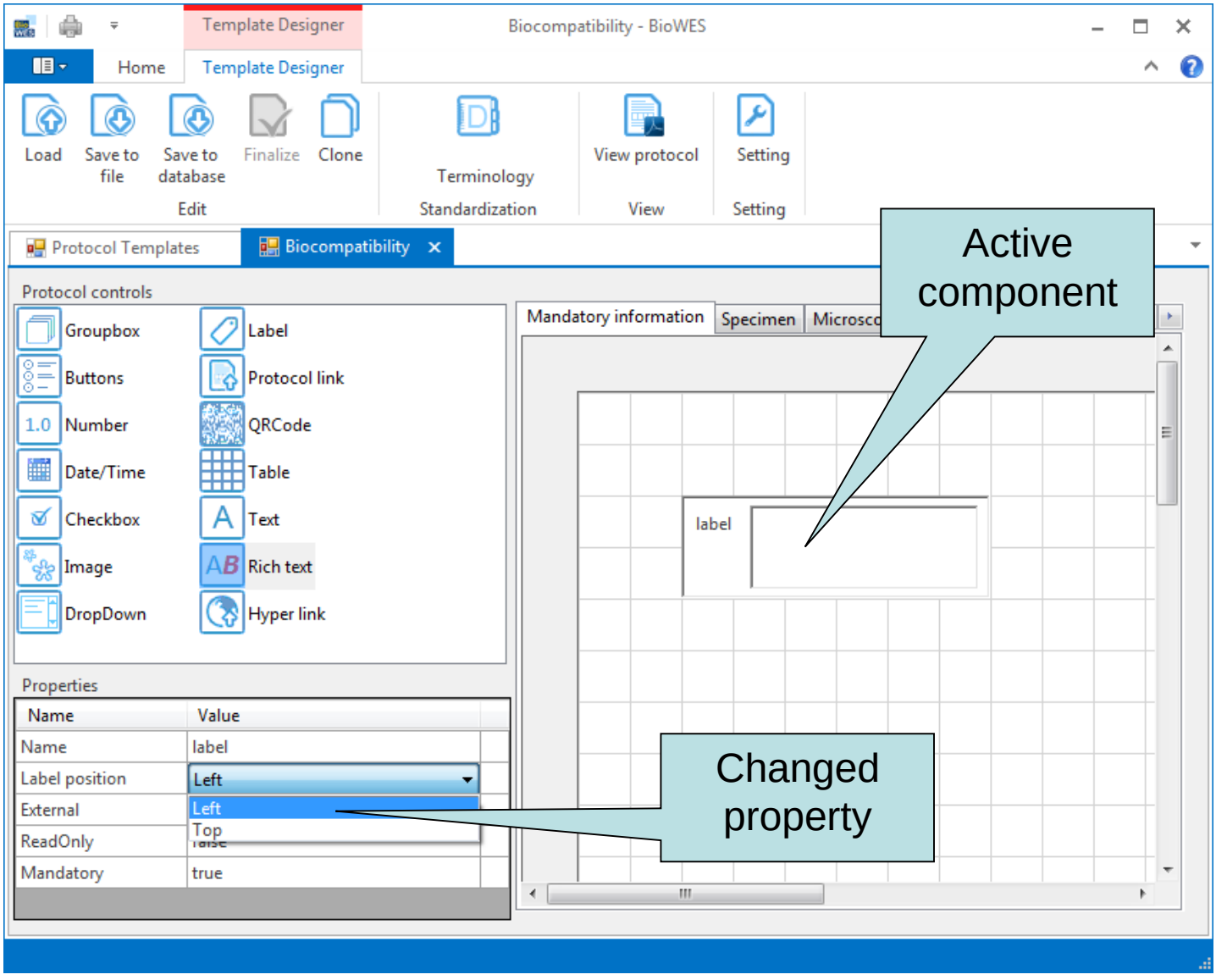
# Design protocol template – template designer

- Template is designed draw-drop method using predefined controls.
- Drag the control from Protocol controls and drop it to template



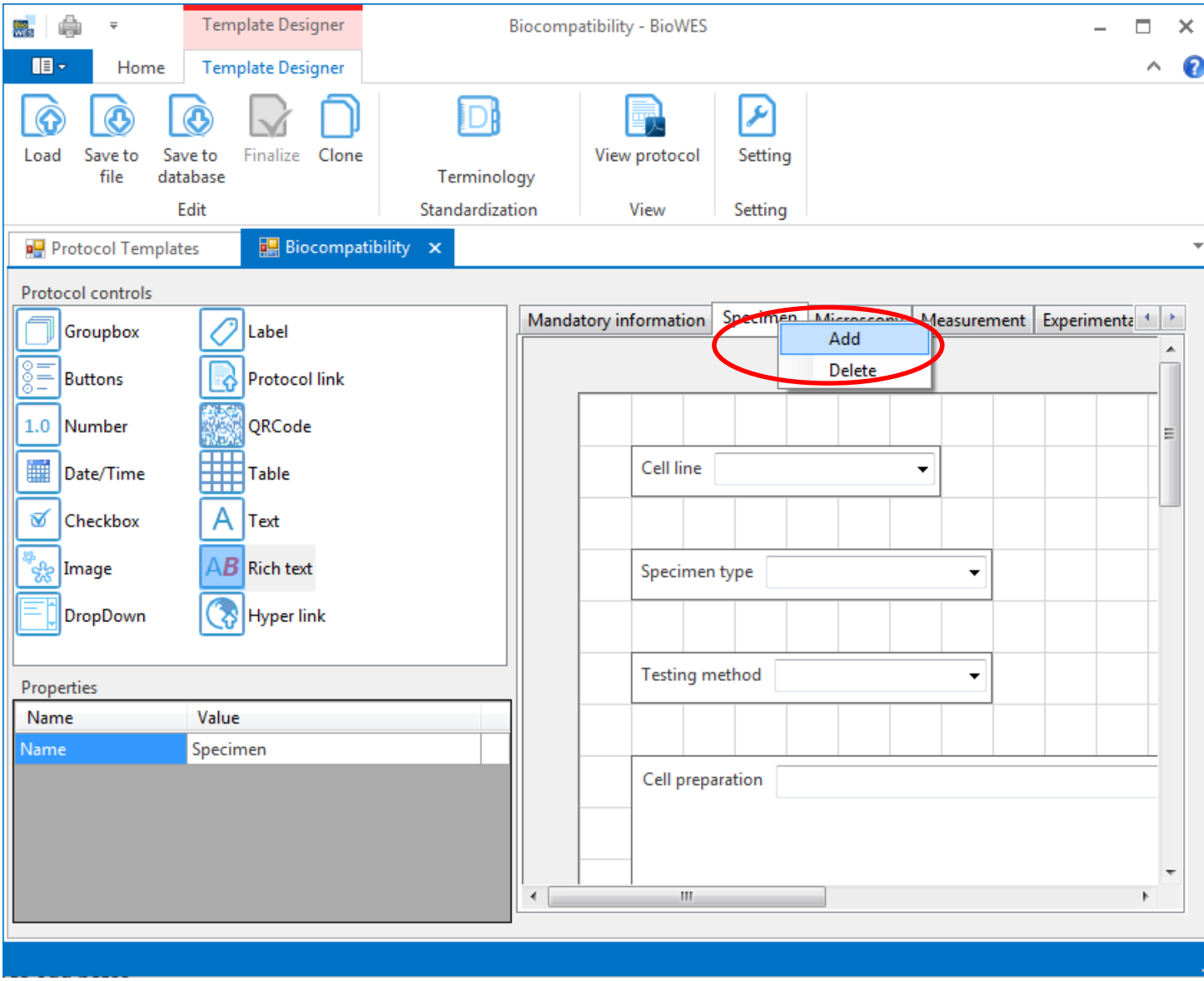
# Design protocol template – template designer

- Change the component property in property window
- Click on the property and select one possibility or insert text
- Confirm by enter



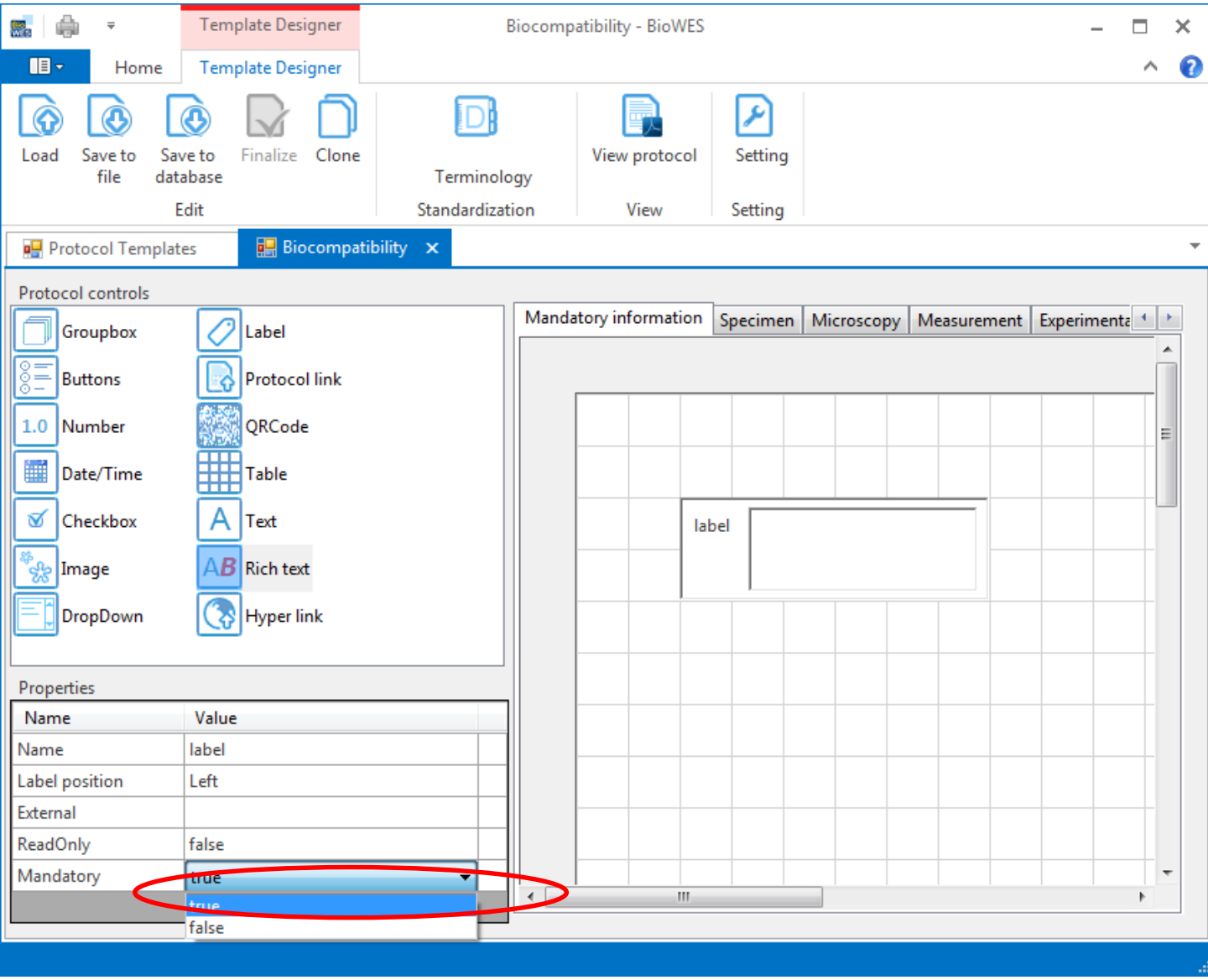
# Design protocol template – template designer

- Size and position of component can be changed – left click and mouse move
- add tab – right click on active tab and select add
- delete component – right click on the component and select delete - all sub components will be deleted (groupbox)



# Design protocol template – template designer

- Common properties
  - Mandatory
    - false – user need not to fill the component in protocol (information is not critical for reproducibility)
    - true – user has to fill the component in protocol



# Design protocol template – template designer

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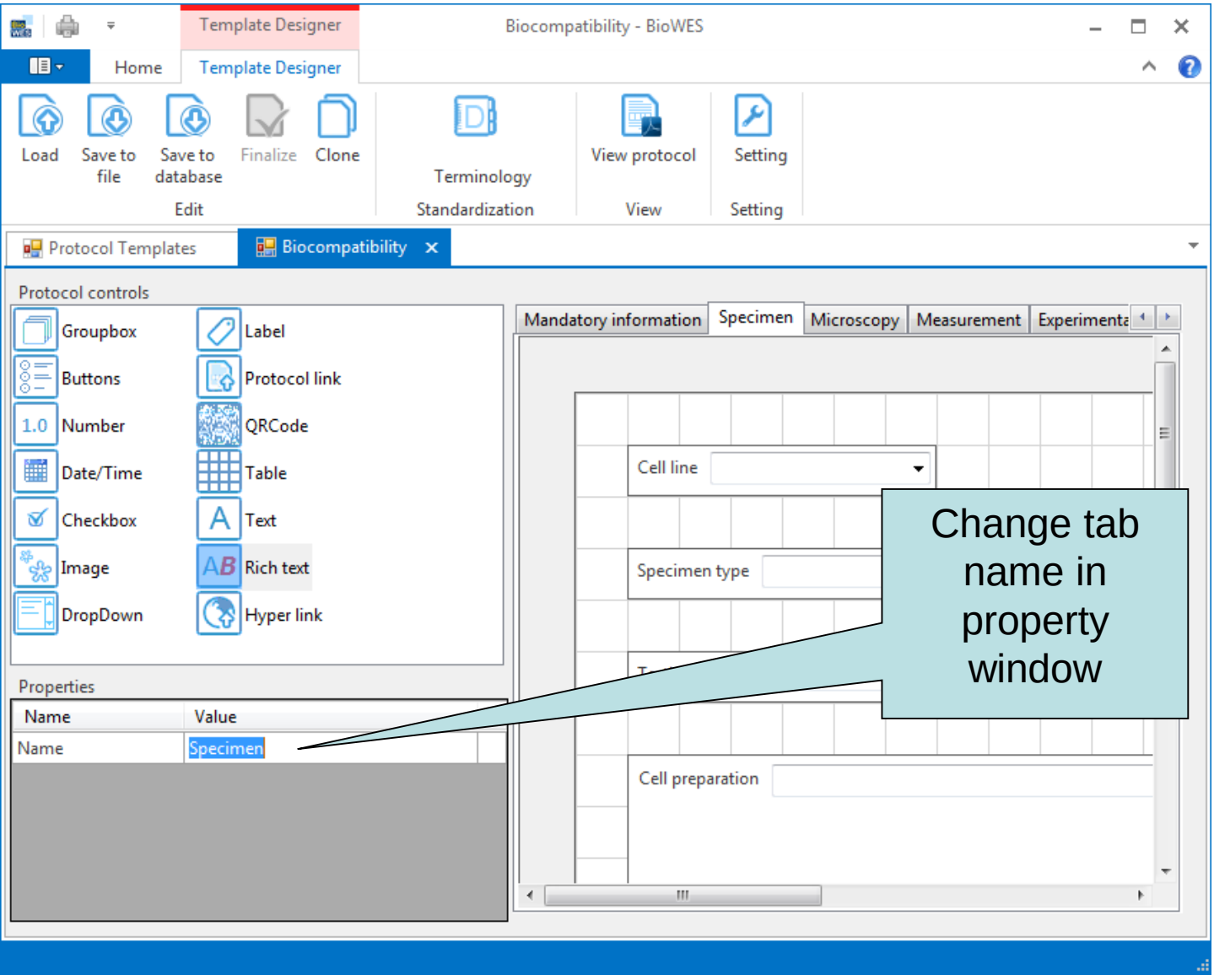
      - Hyper link
      - Protocol link
  - The components are internally described by XML language
  - Final protocol template is stored into XML file and can be open by any XML editor

# Design protocol template – components

## Tab

- Devide protocol into logical parts

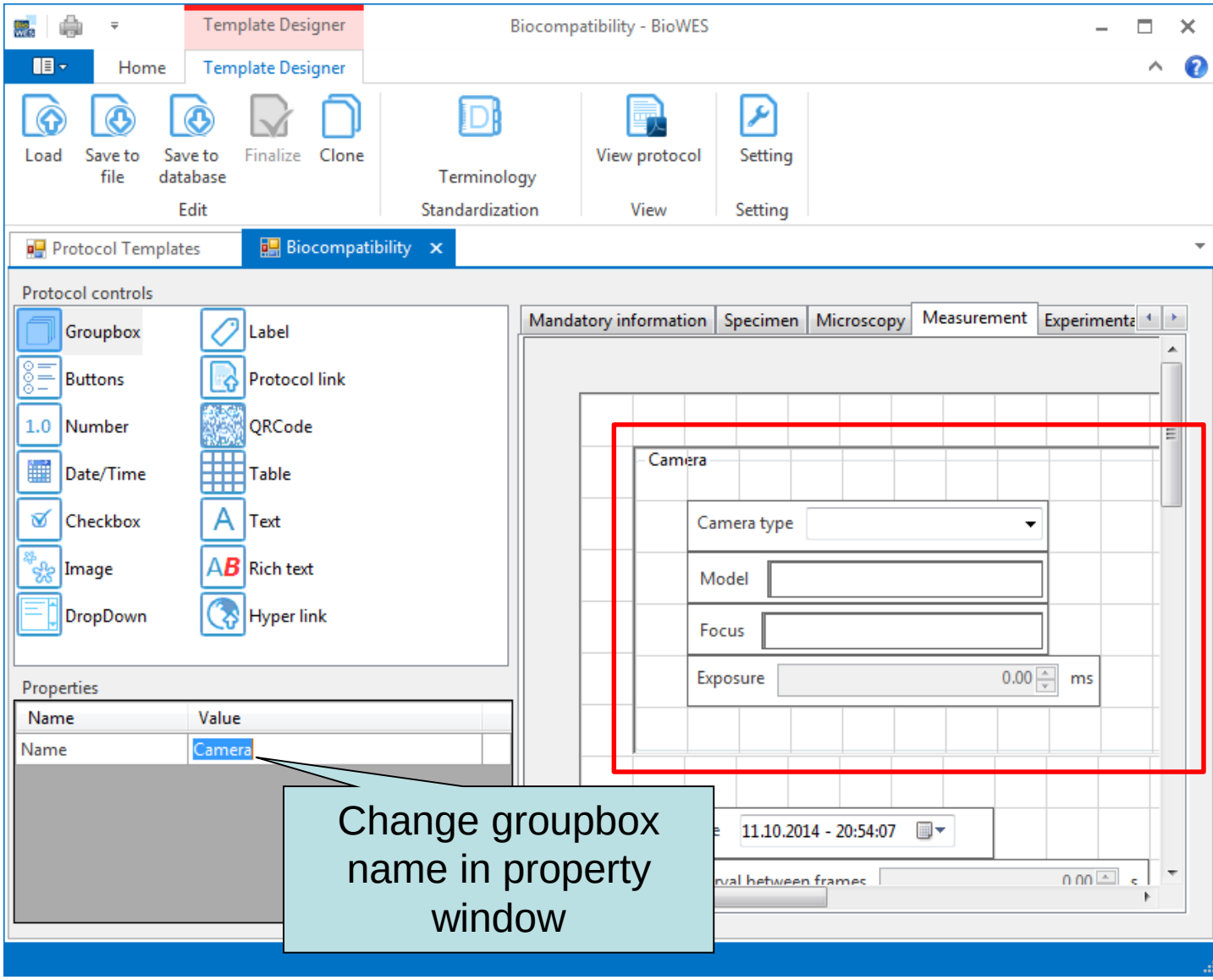



- Properties:
  - Name – tab name appears in the protocol

# Design protocol template – components

## GroupBox

- Encapsulate group of components

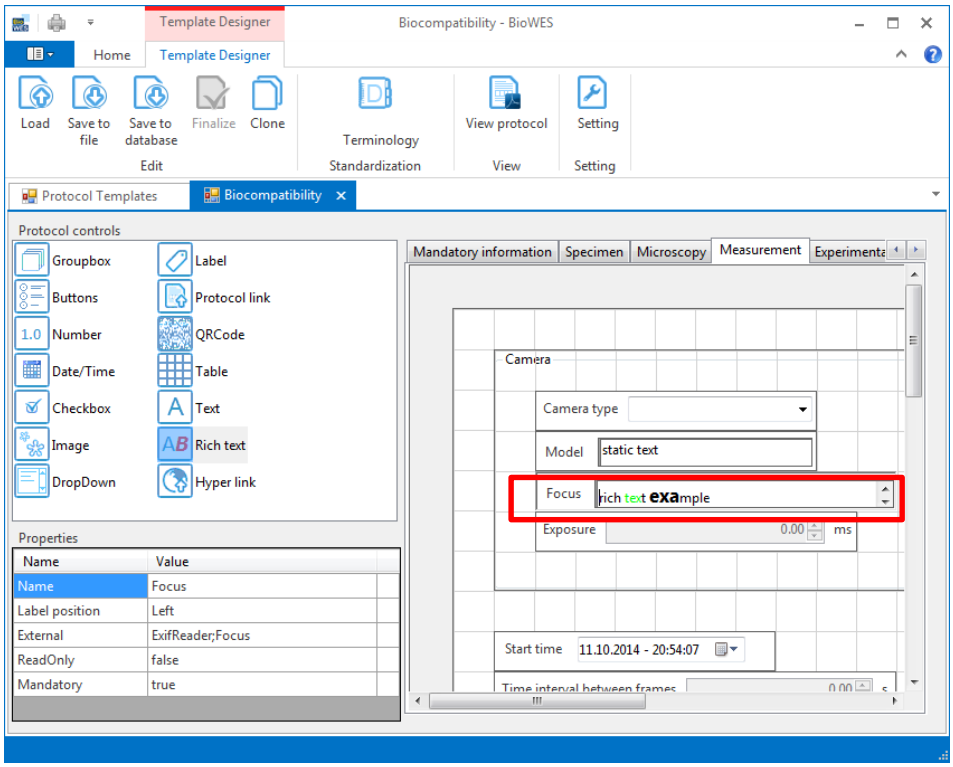



- Properties:
  - Name – groupbox name appears in the protocol
- New components are added into active groupbox

# Design protocol template – components

## Rich text

- Component for formated text input

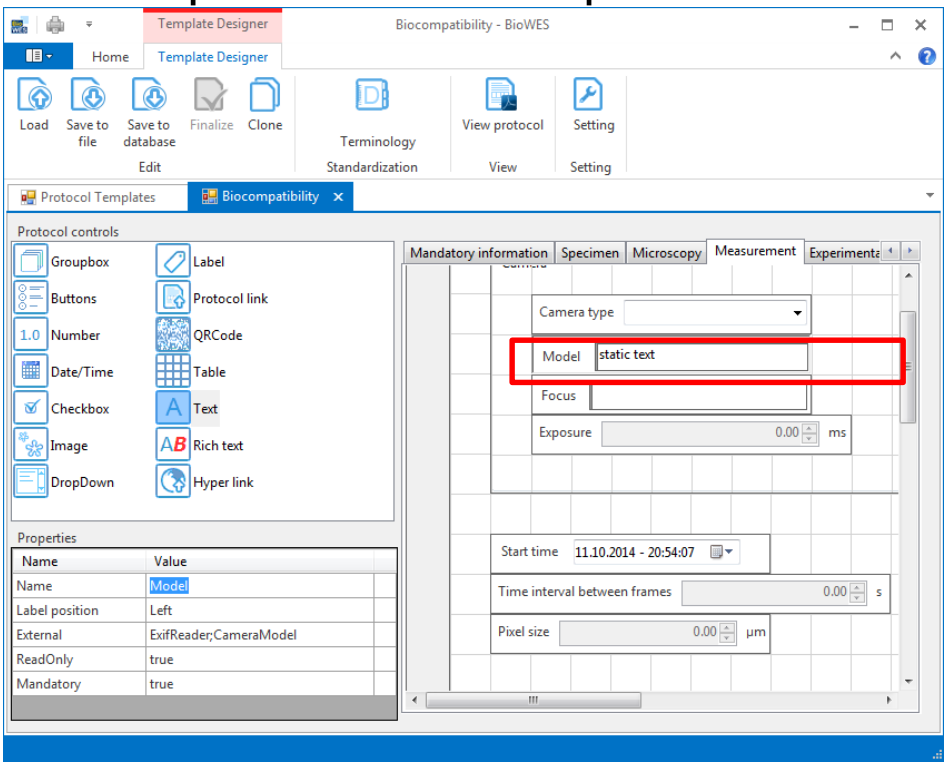



- Properties:
  - Name – name of the component
  - Label position – left/top – defines position of name
  - External – name of the Plugin used for automatic filling of the component
  - ReadOnly – true/false – defines if the inserted text is read ony or user can modify text in protocol

# Design protocol template – components

## Text

- Component for text input

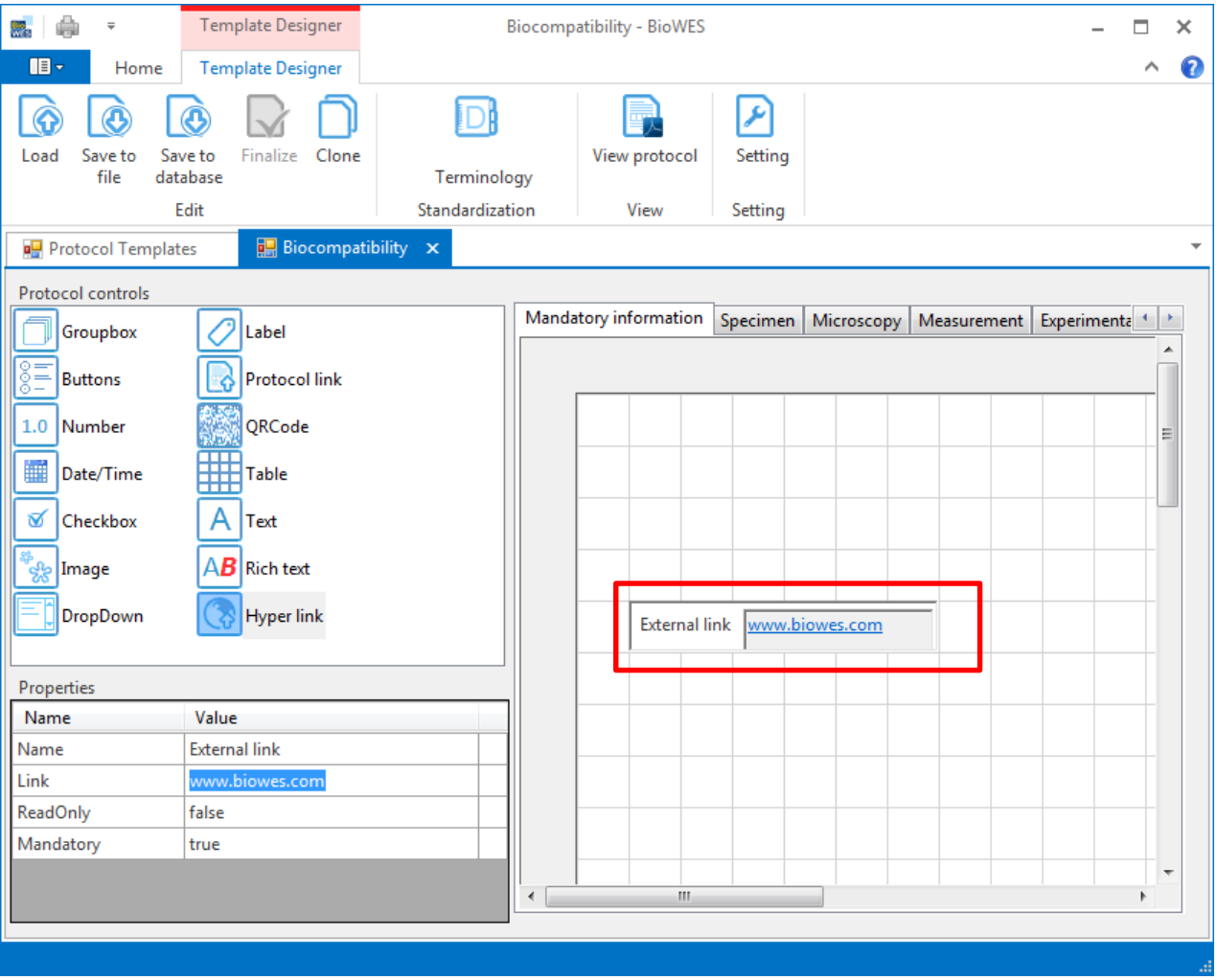



- Properties:
  - Name – name of the component
  - Label position – left/top – defines position of name
  - External – name of the Plugin used for automatic filling of the component
  - ReadOnly – true/false – defines if the inserted text is read ony or user can modify text in protocol

# Design protocol template – components

## Hyper link

- Creates text box for web address – active link in PDF file
- Usually used for specification of the equipment

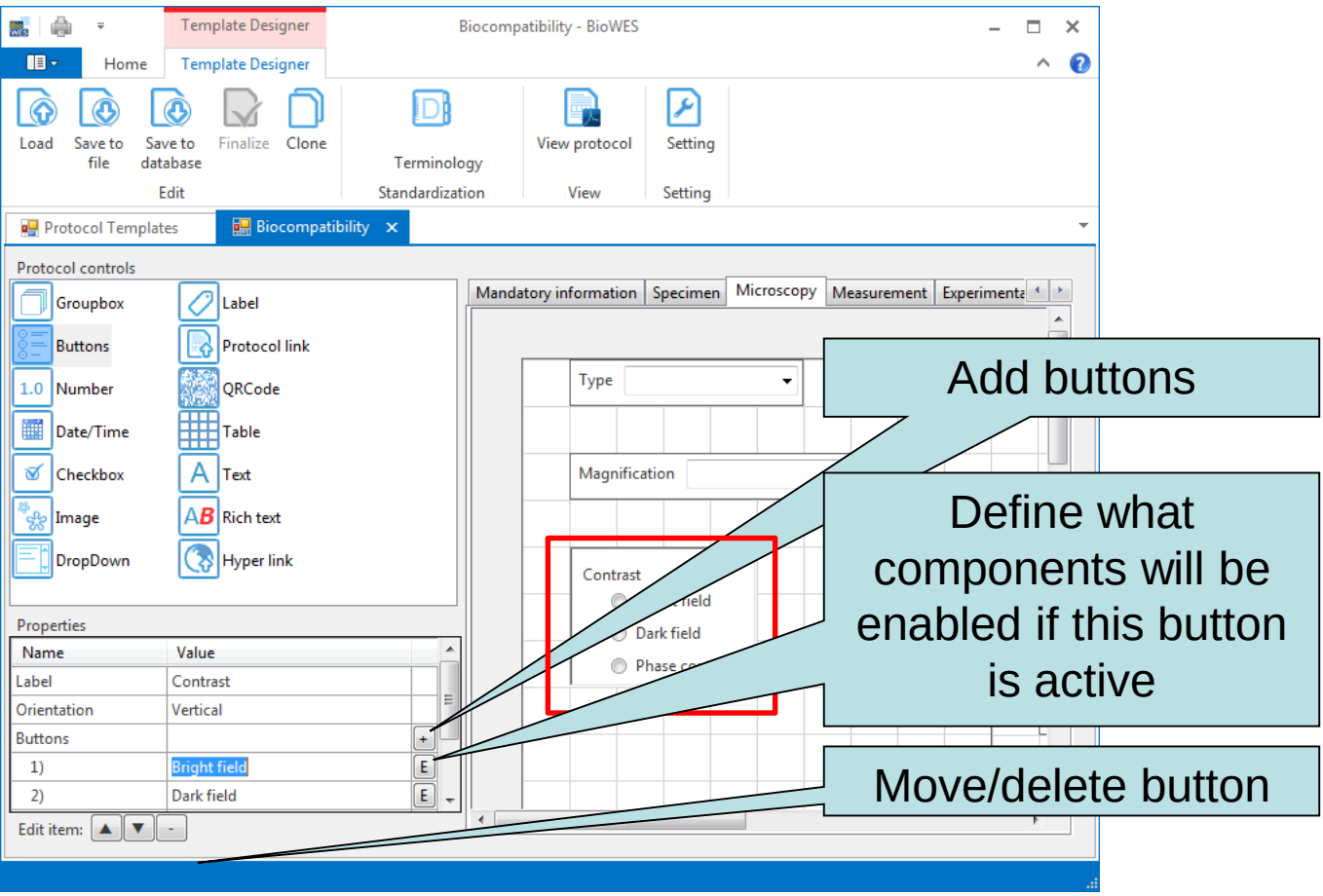



- Properties:
  - Name – name of the component
  - Link – link to external web page

# Design protocol template – components

## Buttons

- Creates N buttons with user defined names
- Just one button can be active at a time
- Usually used for selection of one possibility

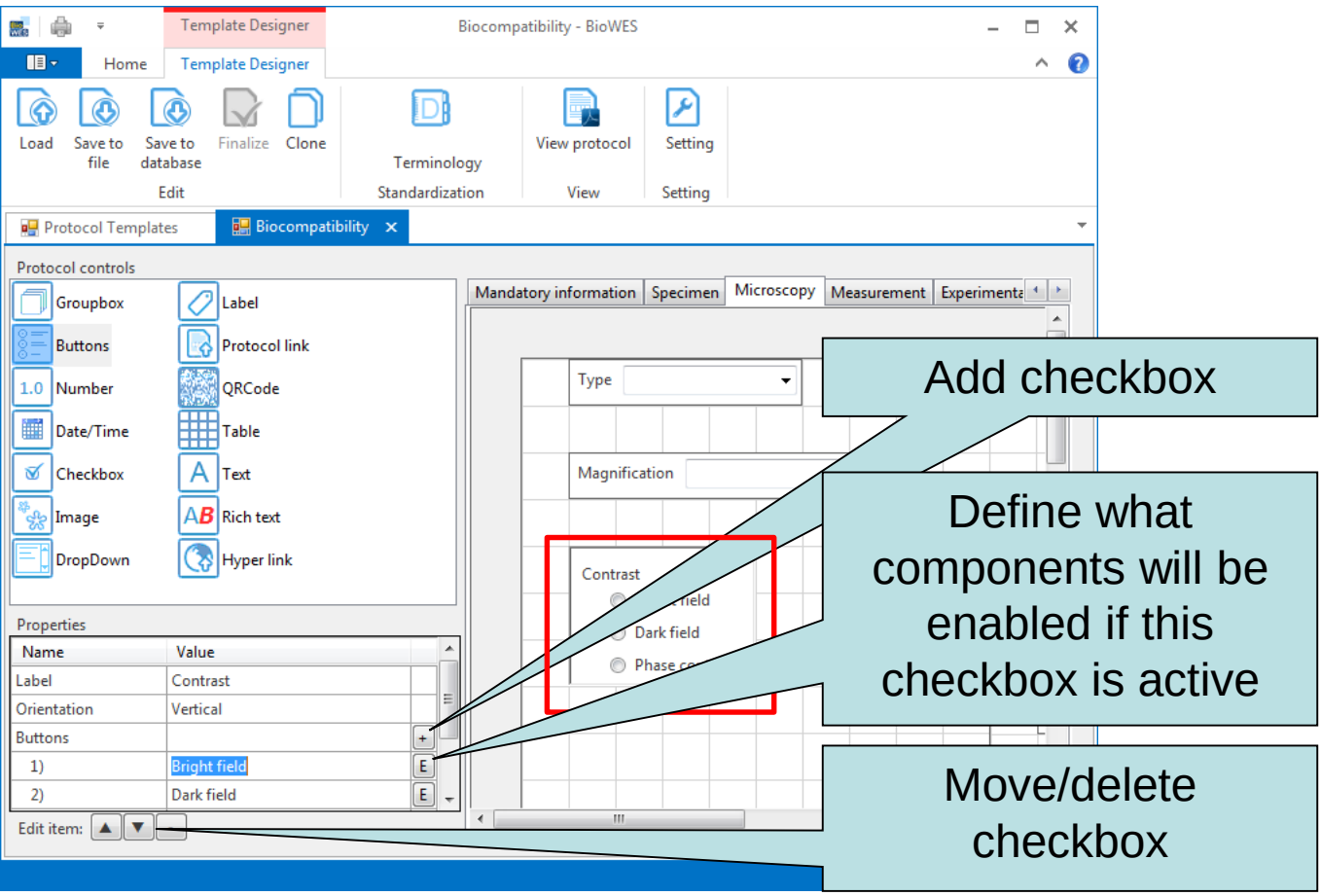



- Properties:
  - Label – text of buttons component
  - Orientation – vertical/horozintal – defines orientation of buttons

# Design protocol template – components

## Checkbox

- Creates N check boxes with user defined names
- It is usually used for passing several steps of the methods

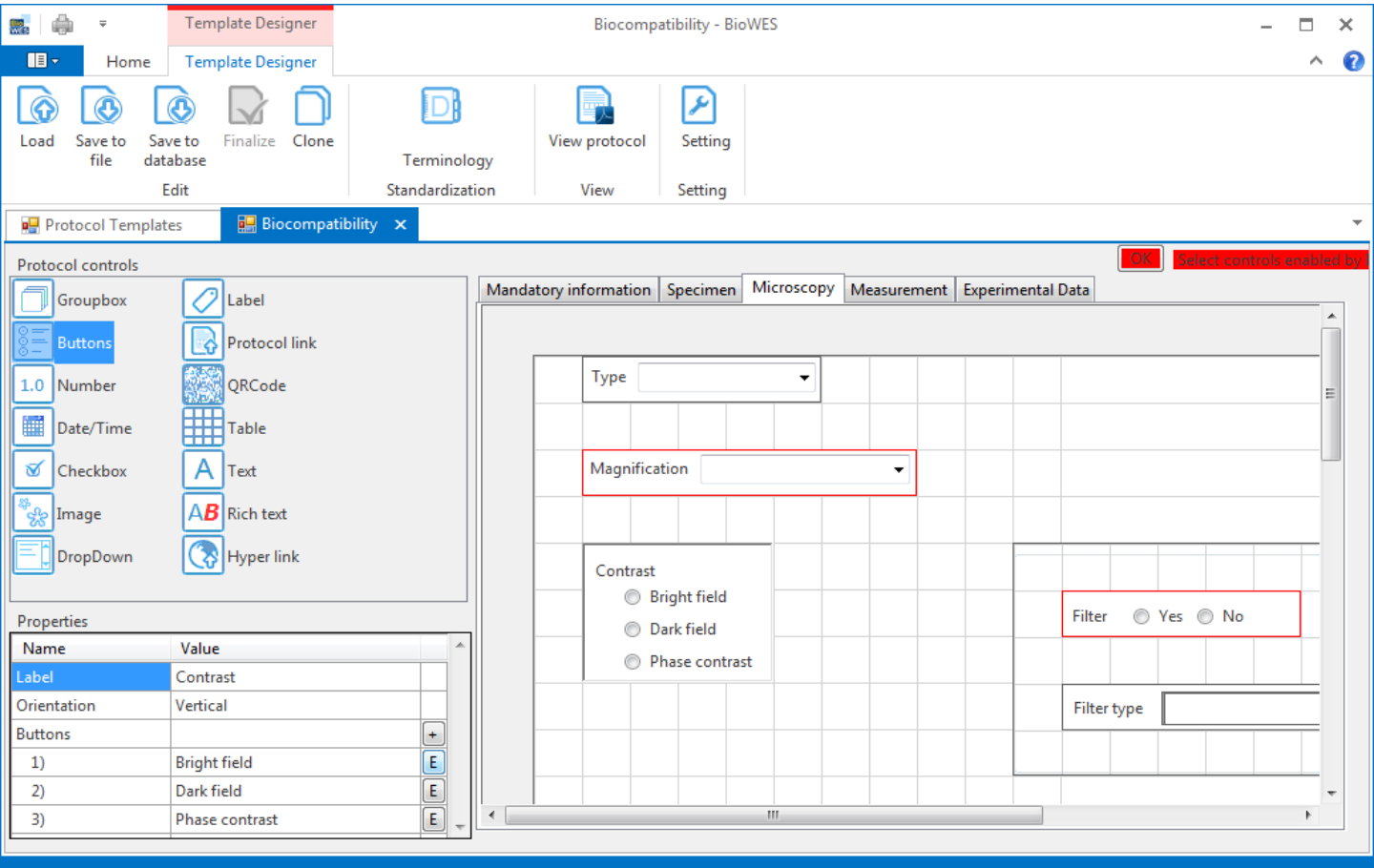



- Properties:
  - Label – text of checkbox component
  - Orientation – vertical/horozintal – defines orientation of checkboxes

# Design protocol template – components

## Buttons/checkbox – enable components

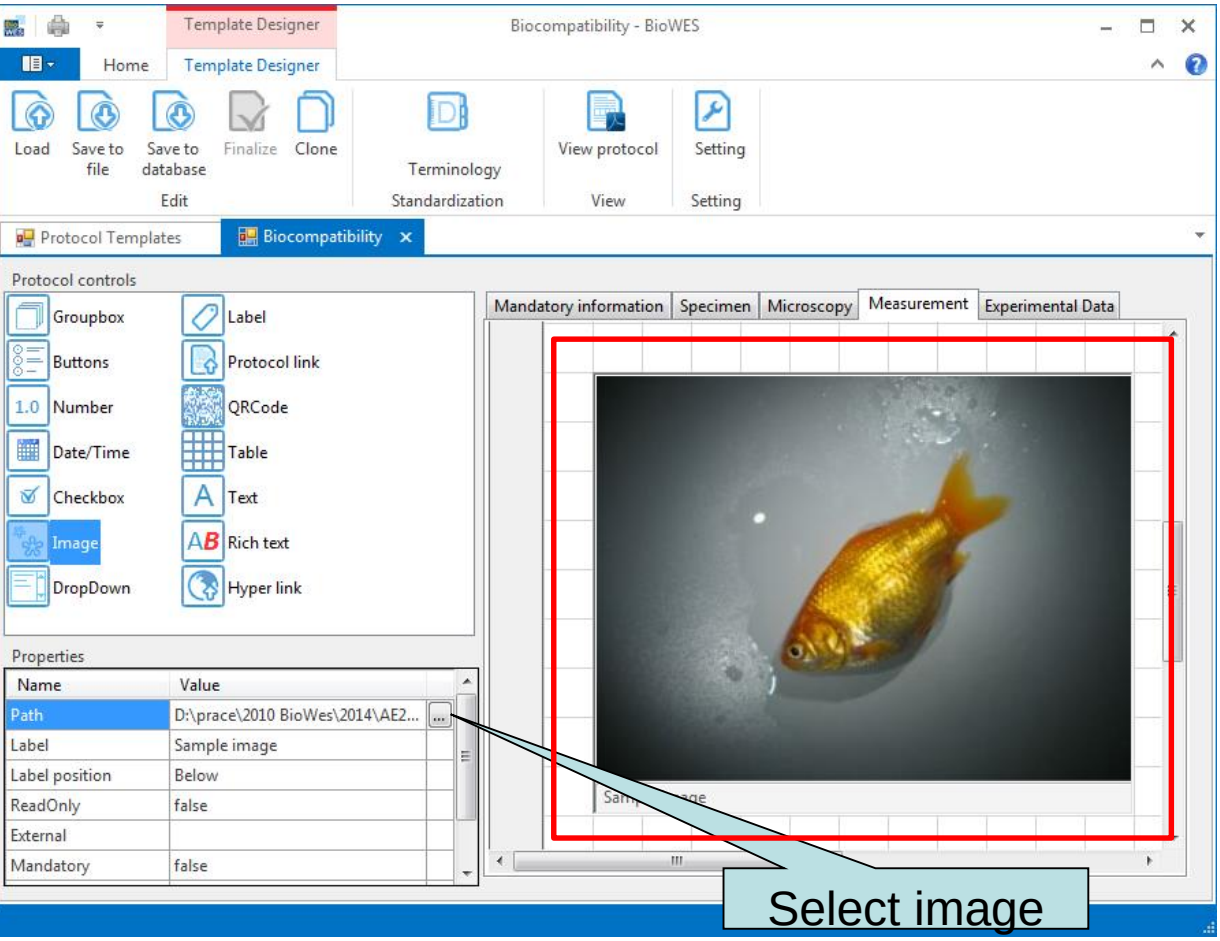
- Click on E button next to button name
- Enable/disable mode is activated
- Click on component – add/remove component from list of components enabled by particular buttonion of one possibility
- Click on OK (red button) to finish Enable/disable mode



# Design protocol template – components

## Image

- Show the image in the protocol

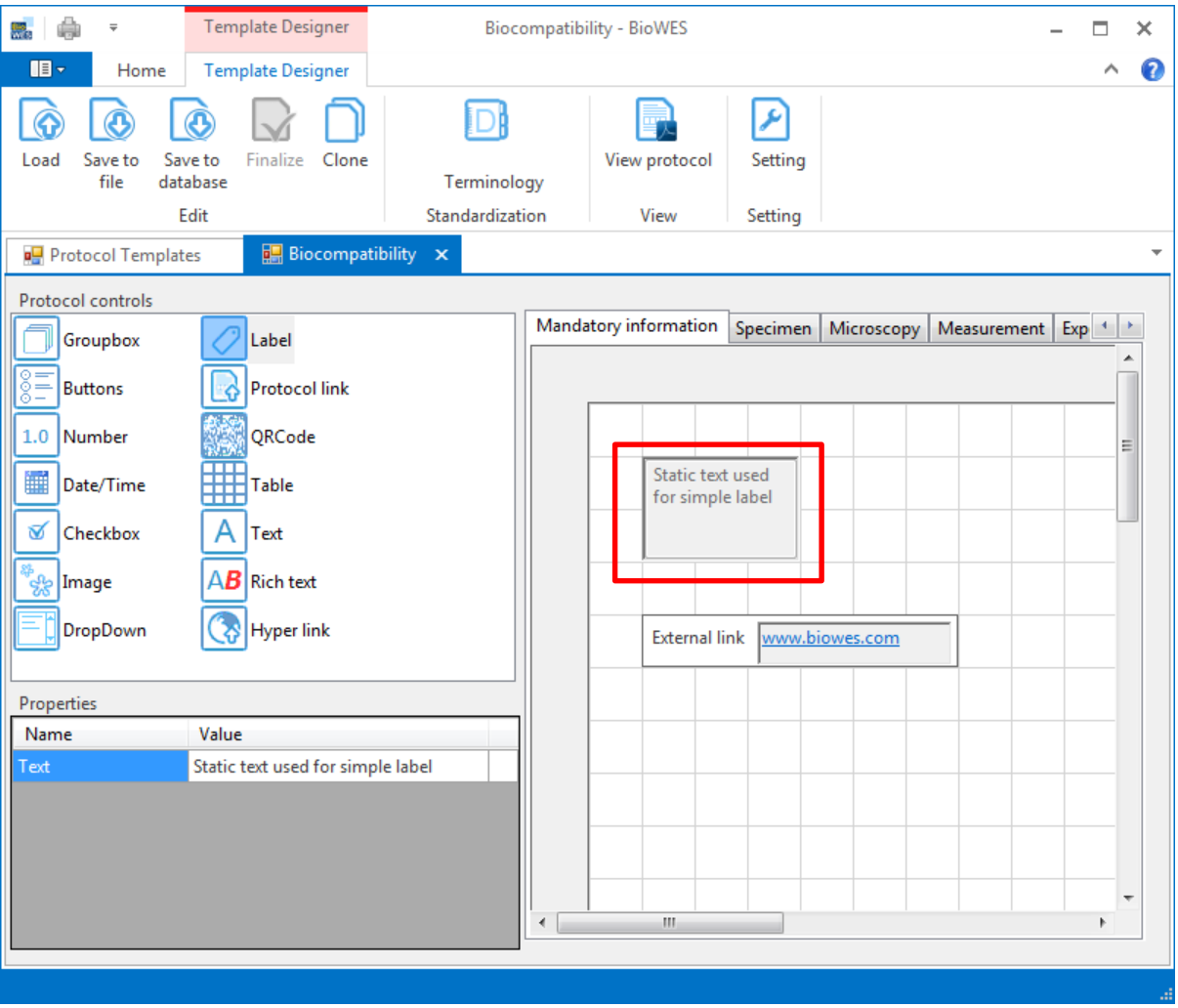



- Properties:
  - Path – full or relative path to the image
  - Label – text related to the image
  - Label possition – Top/bottom – position of label
  - ReadOnly – true = user can not change image in protocol, false = user can add or change image in protocol

# Design protocol template – components

## Label

- The component is static text
- It is usually used for the comments or labels

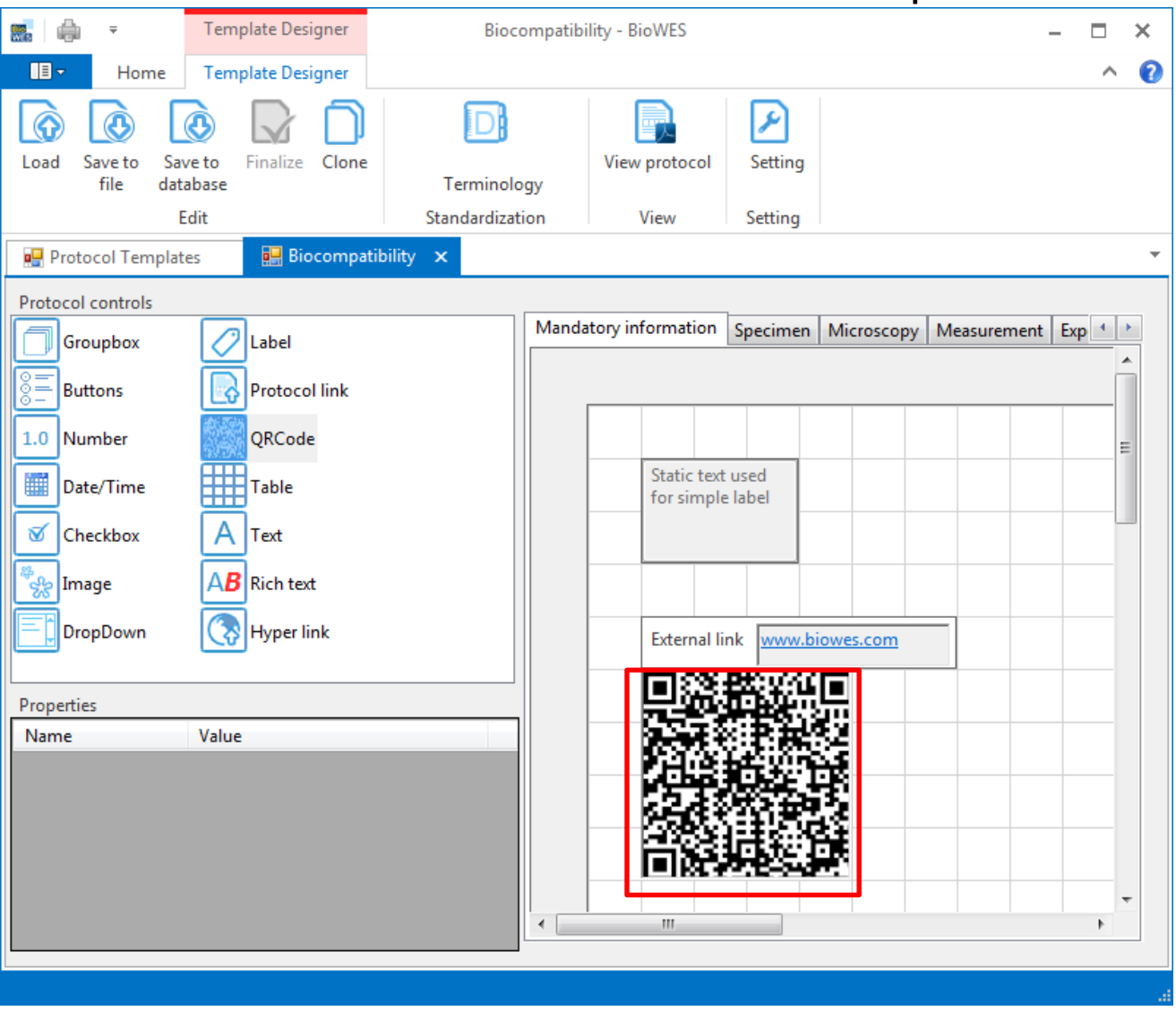



- Properties:
  - Name – text which is shown in the form

# Design protocol template – components

## QR code

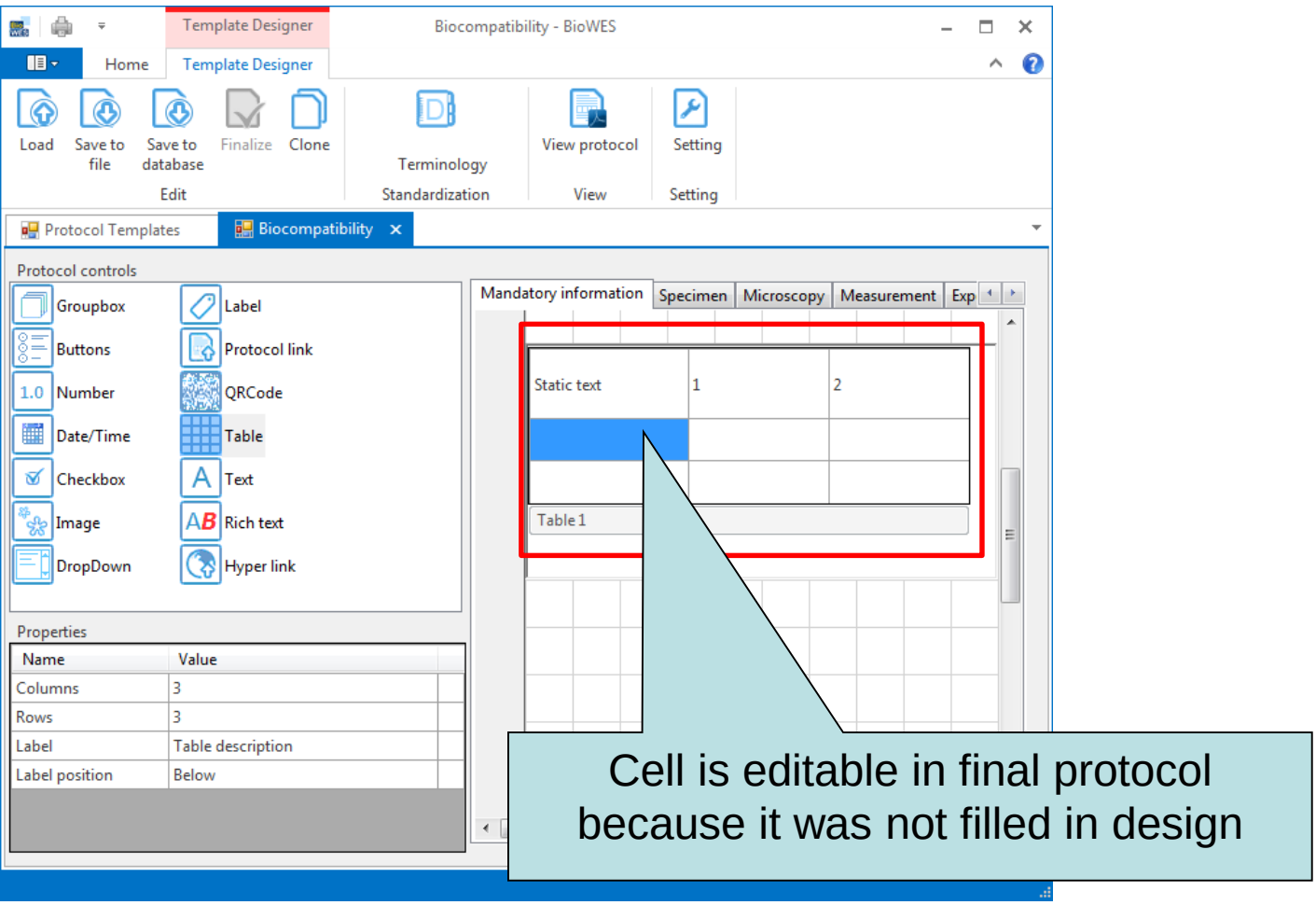
- Show QR code
- QR code contains protocol ID + protocol Name + protocol descrition
- Can be used for identification of the protocol



# Design protocol template – components

## Table

- Standard table
- The cells filled in protocol template designer are disabled in final protocol

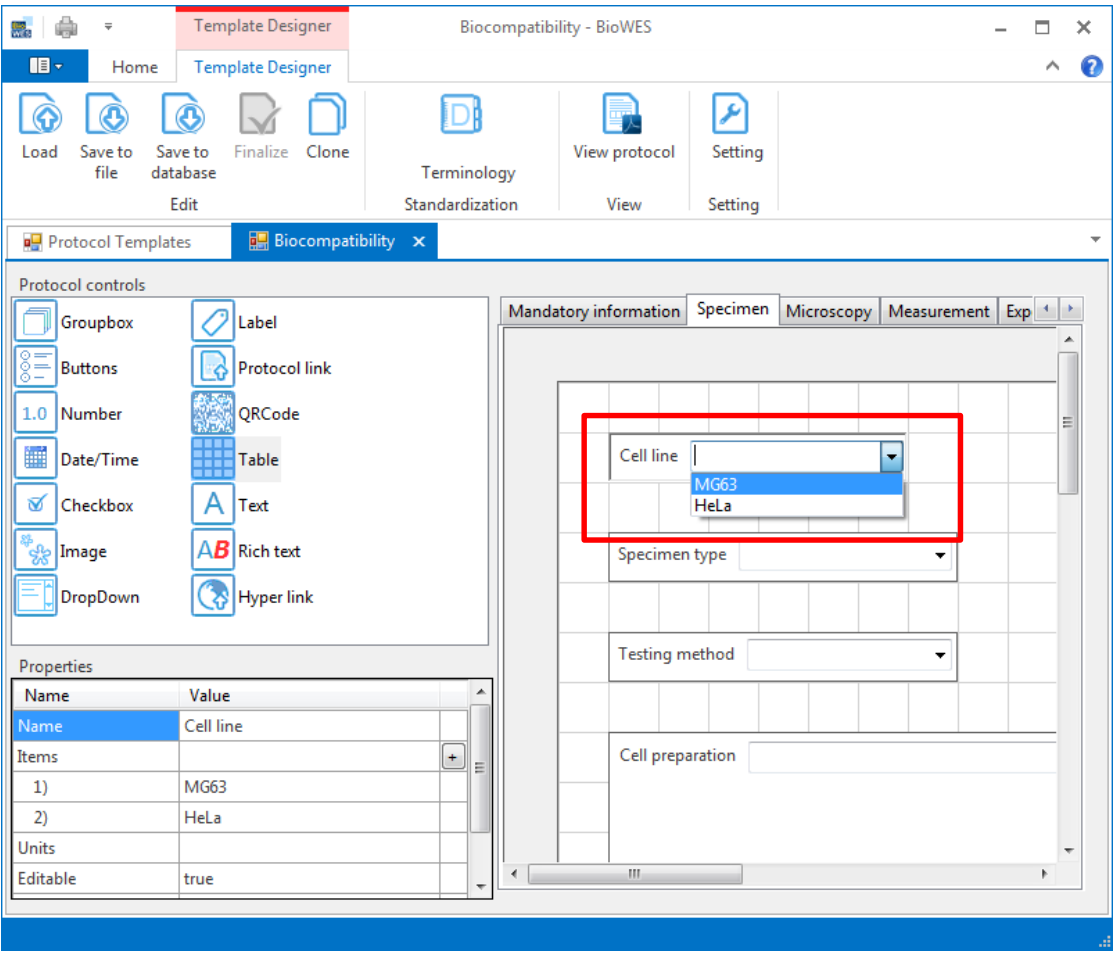



- Properties:
  - Columns/Rows – number of table columns and rows
  - Label – table description
  - Label possition – top/bottom

# Design protocol template – components

## DropDown

- Component with predefined items

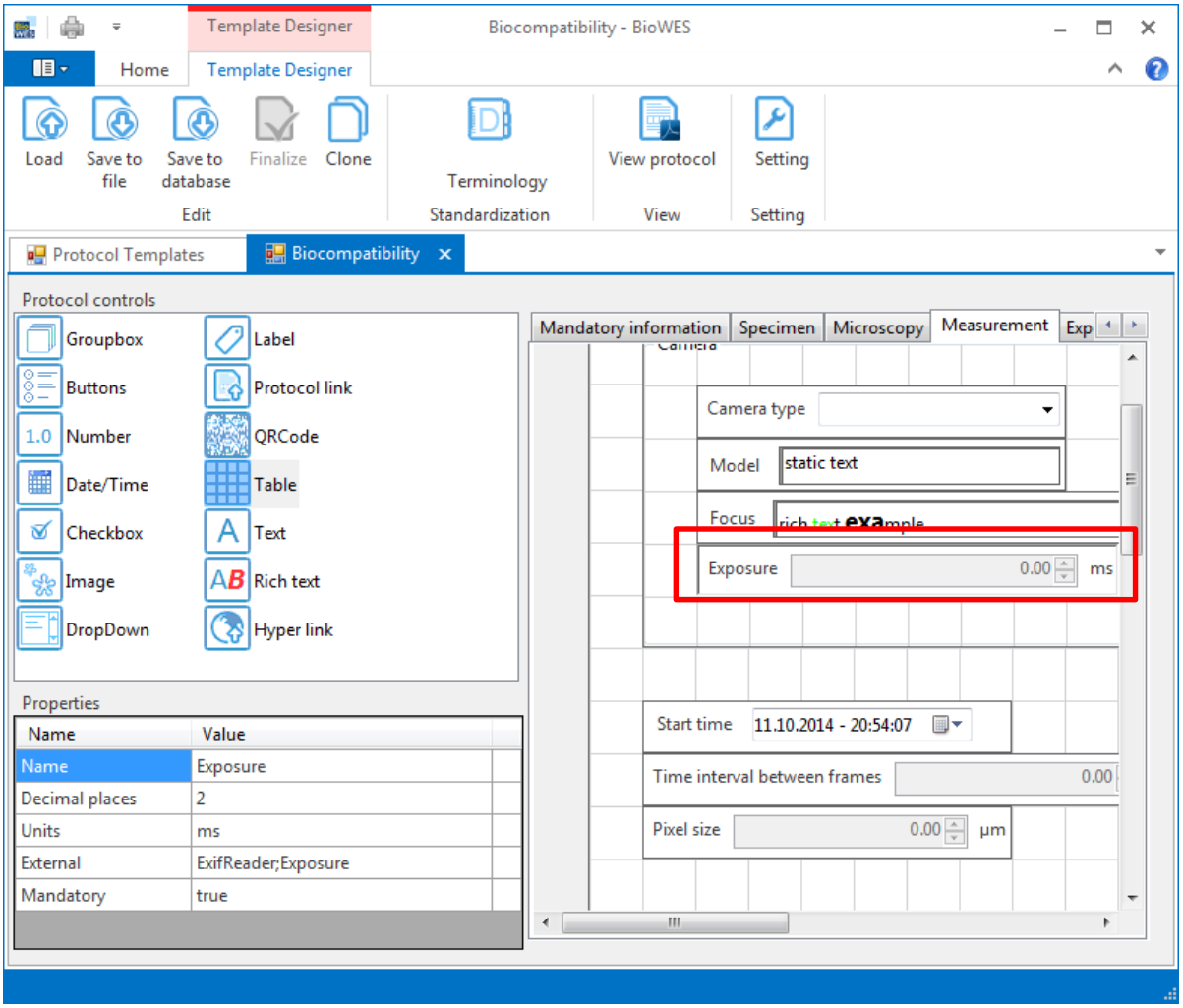



- Properties:
  - Name – text of componet
  - Units – user cn define unist for items
  - Editable – true/false – true= user can add new items in protocol, false = user can select only from predefined items

# Design protocol template – components

## Number

- Real numbers with units

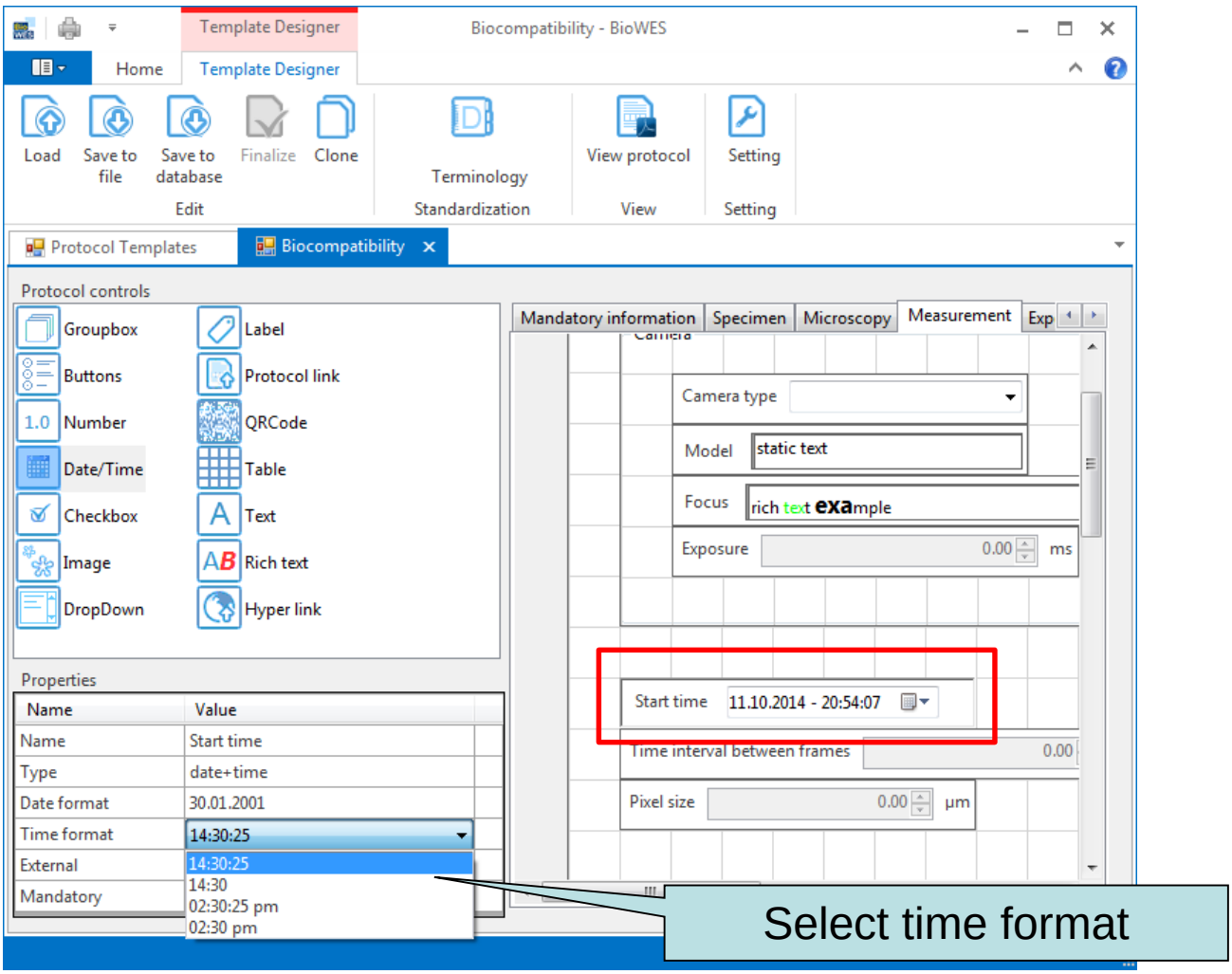



- Properties:
  - Name – text of number
  - Decimal places - number of shown decimal places
  - Units – units of number

# Design protocol template – components

## Date/time

- Information about data, time or combined data+time

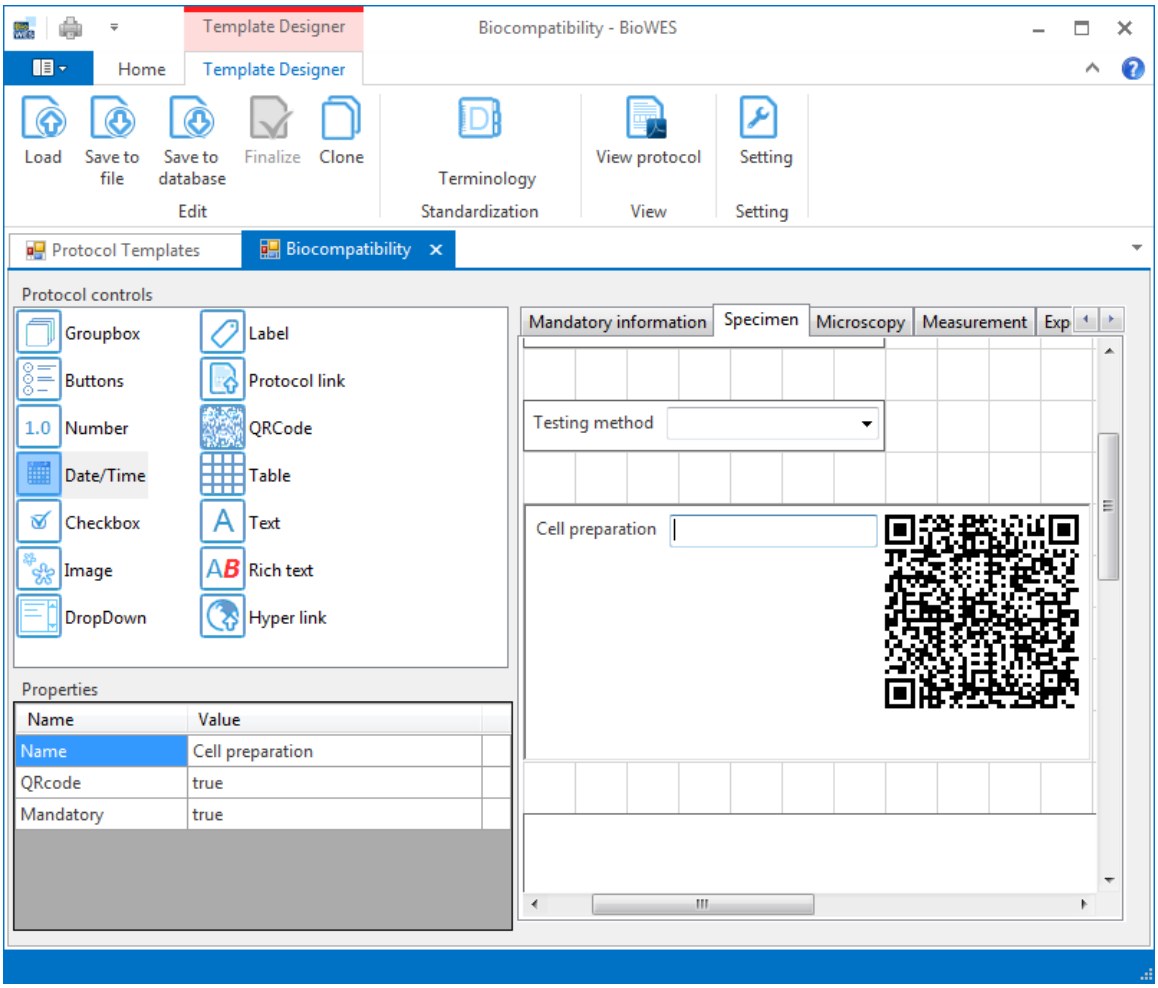



- Properties:
  - Name – text of data/time
  - Type – data only/time only/ data+time
  - Date format – defines format of date
  - Time format – defines format of time

# Design protocol template – components

## Protocol link

- Direct link to other protocols
- Click (+ Ctrl) show linked protocol

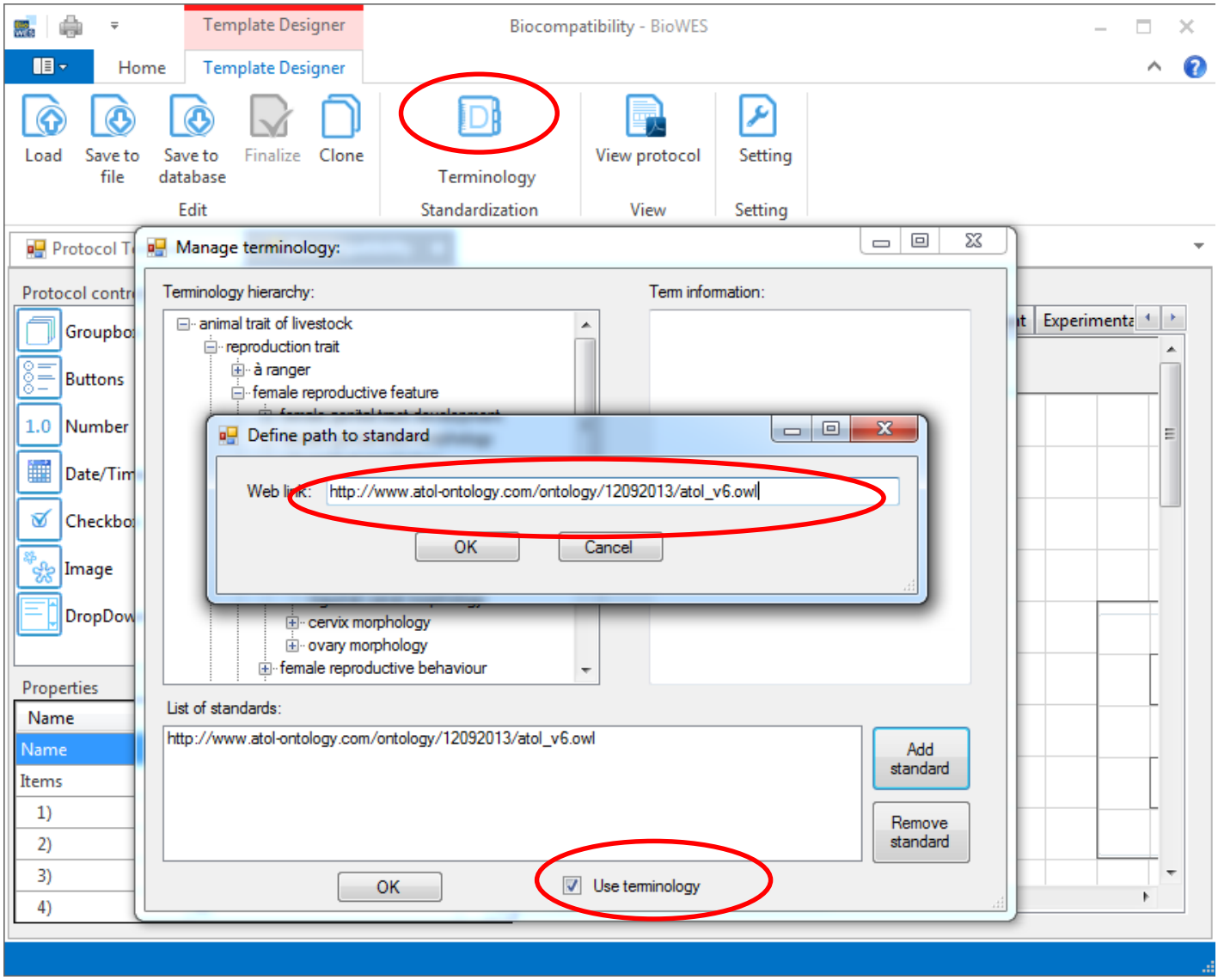



- Properties:
  - Name – text of link
  - QR code – true/flse – true´QR code of linked protocol is shown

# Design protocol template – standardization

## Standardization

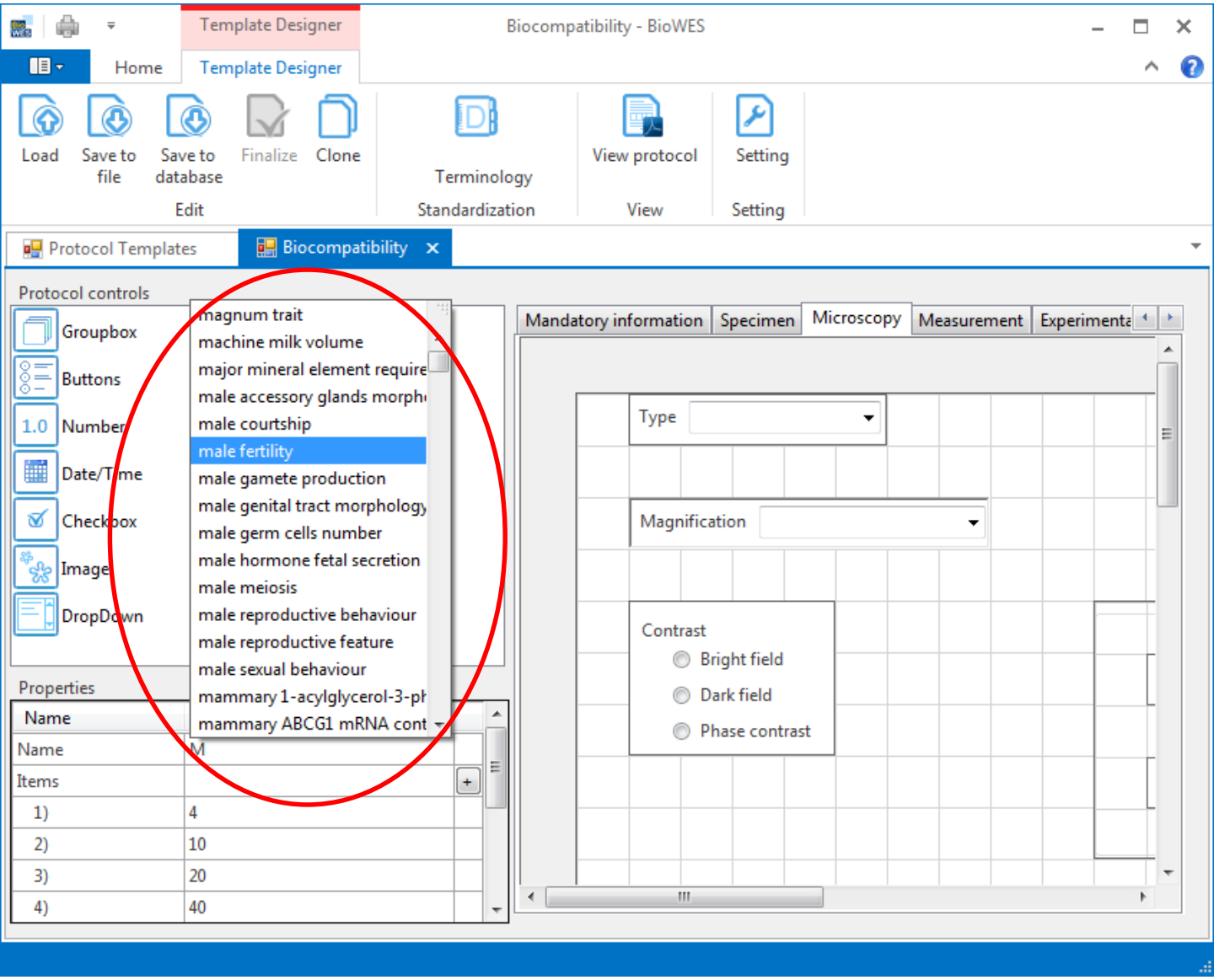
- Click on menu – Terminology
- The window for definition of OWL file appears
- Insert link to OWL file
- Check – use terminology



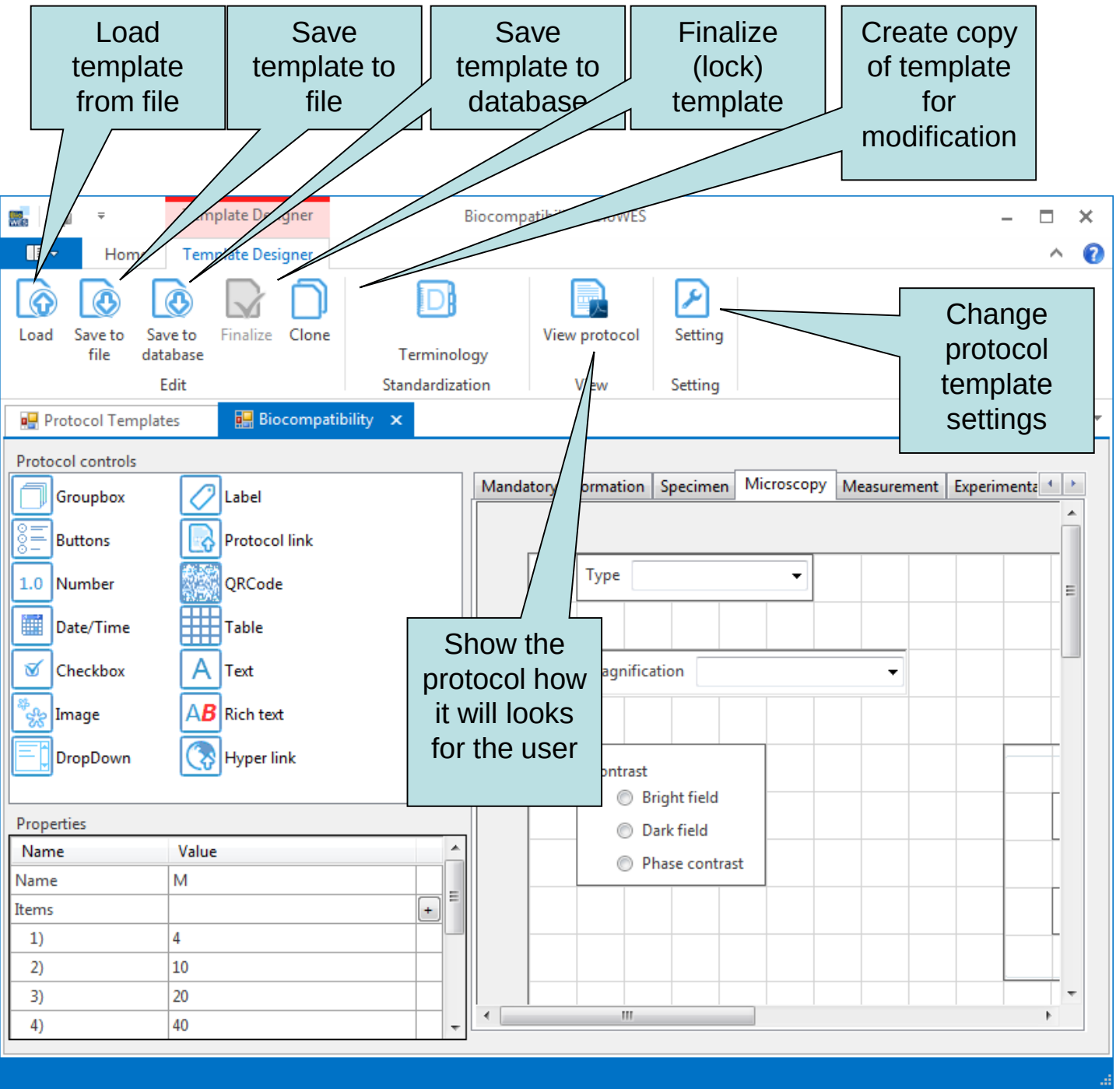
# Design protocol template – standardization

## Standardization

- The terms from terminology will be offered to the user during inserting the name of components

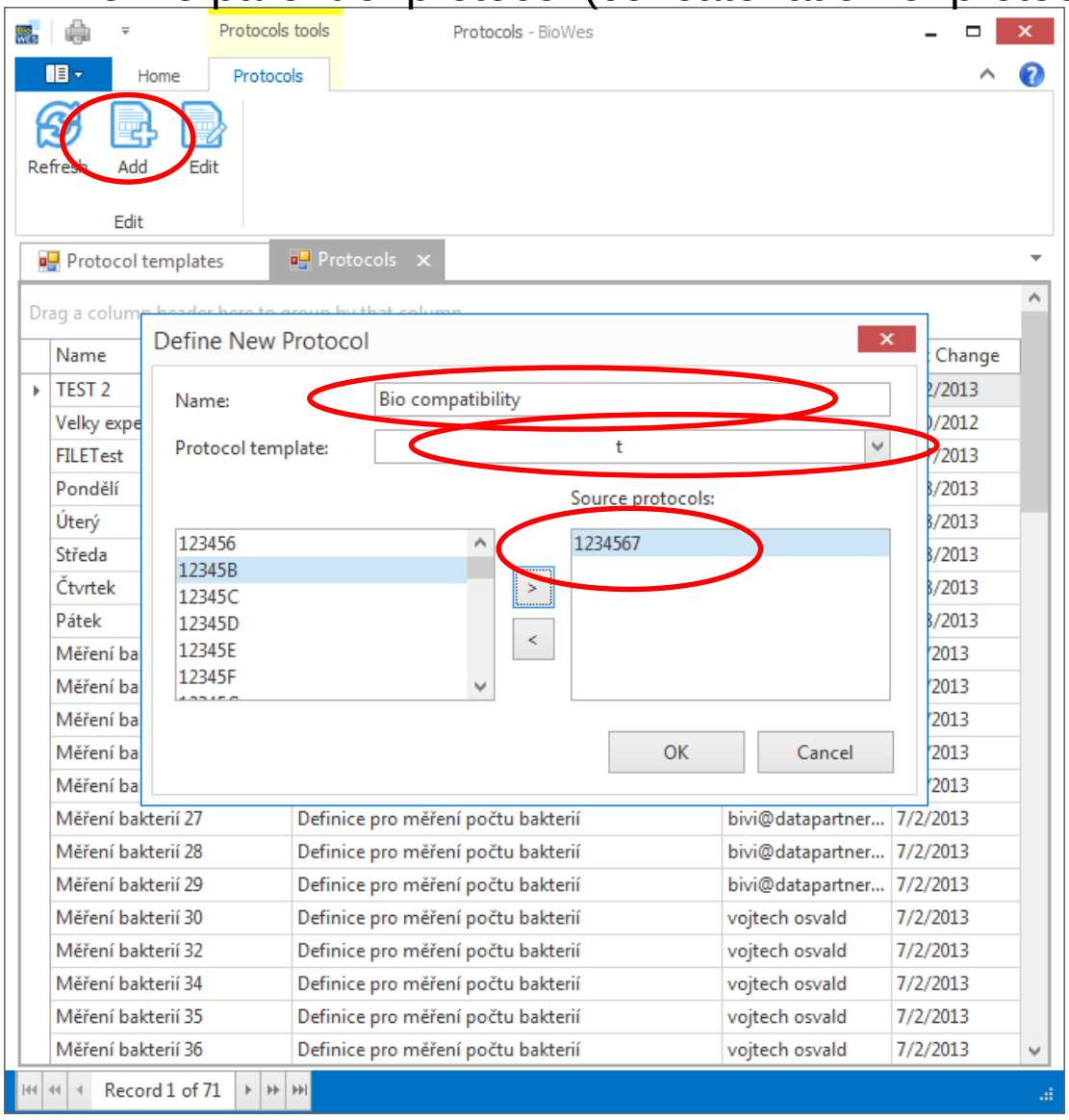


# Design protocol template – template manipulation



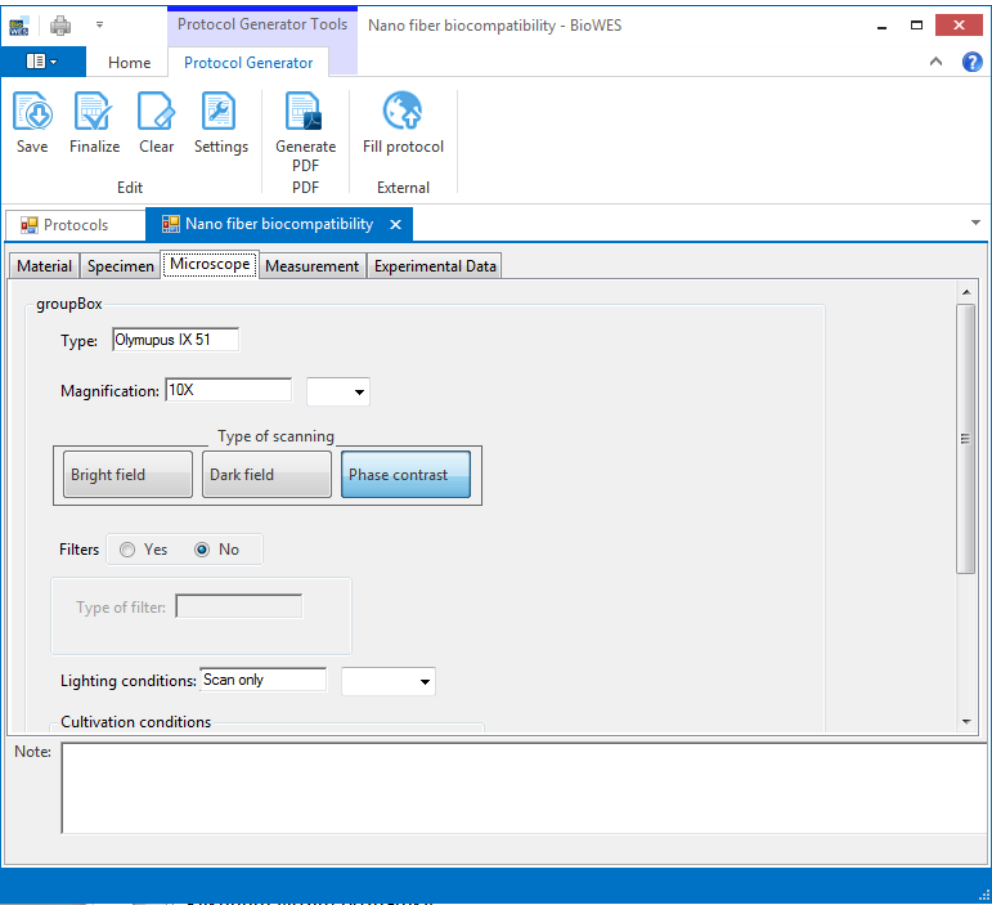
# How to create new protocol from template – protocol generator

1. Click on Add on Protocol tab
   - Protocol generator tool is executed
2. Define the name of new protocol
3. Define the protocol template for the protocol
4. Define parent of protocol (concatenation of protocols)



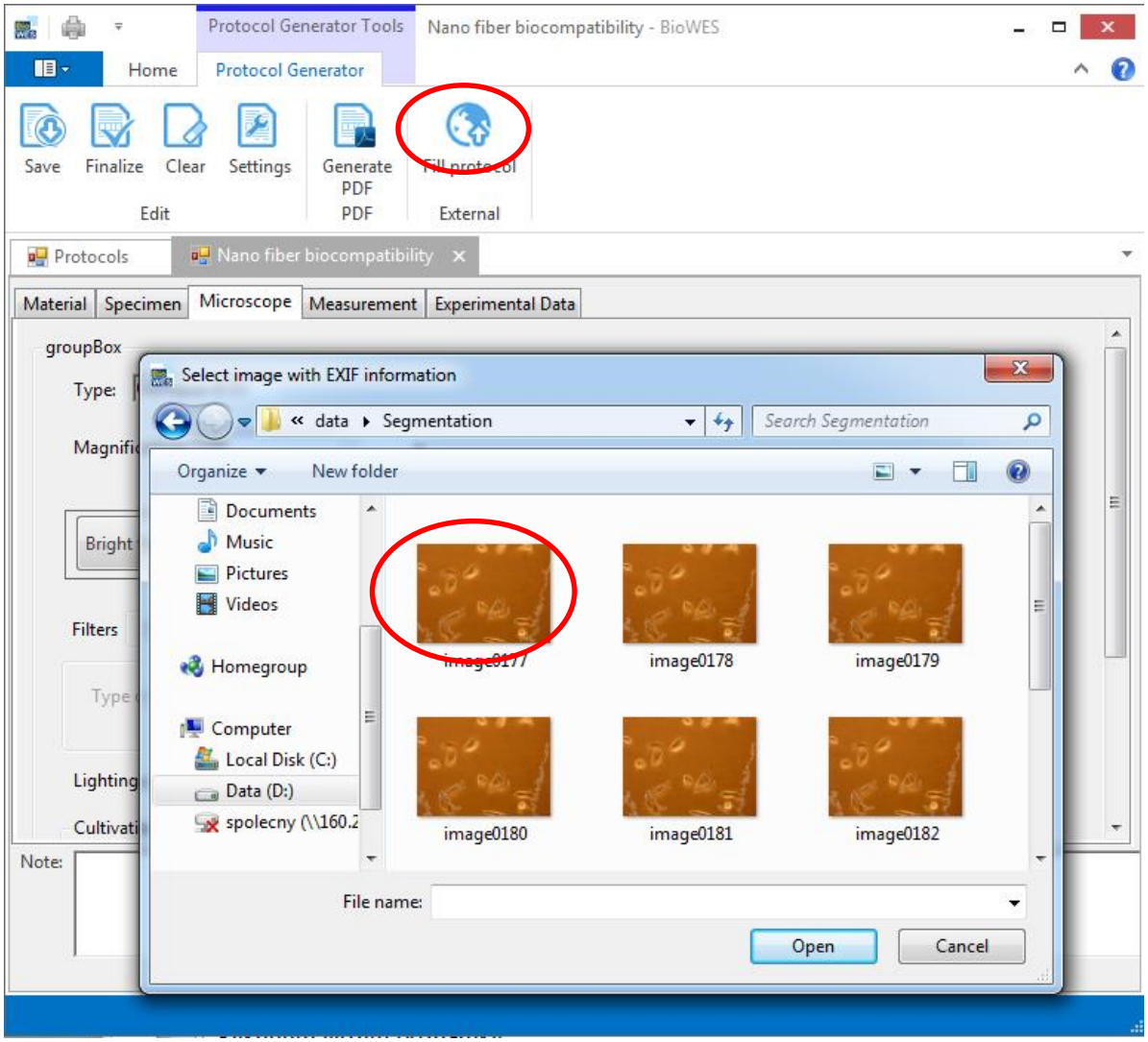
# How to create new protocol from template – protocol generator

- Protocol is generated
- The user can fill the information about the experiment
  - All mandatory information about experiment (defined in template)
- User can use predefined recommendations
- The protocol can be used as guide through the experiment if the template was designed for



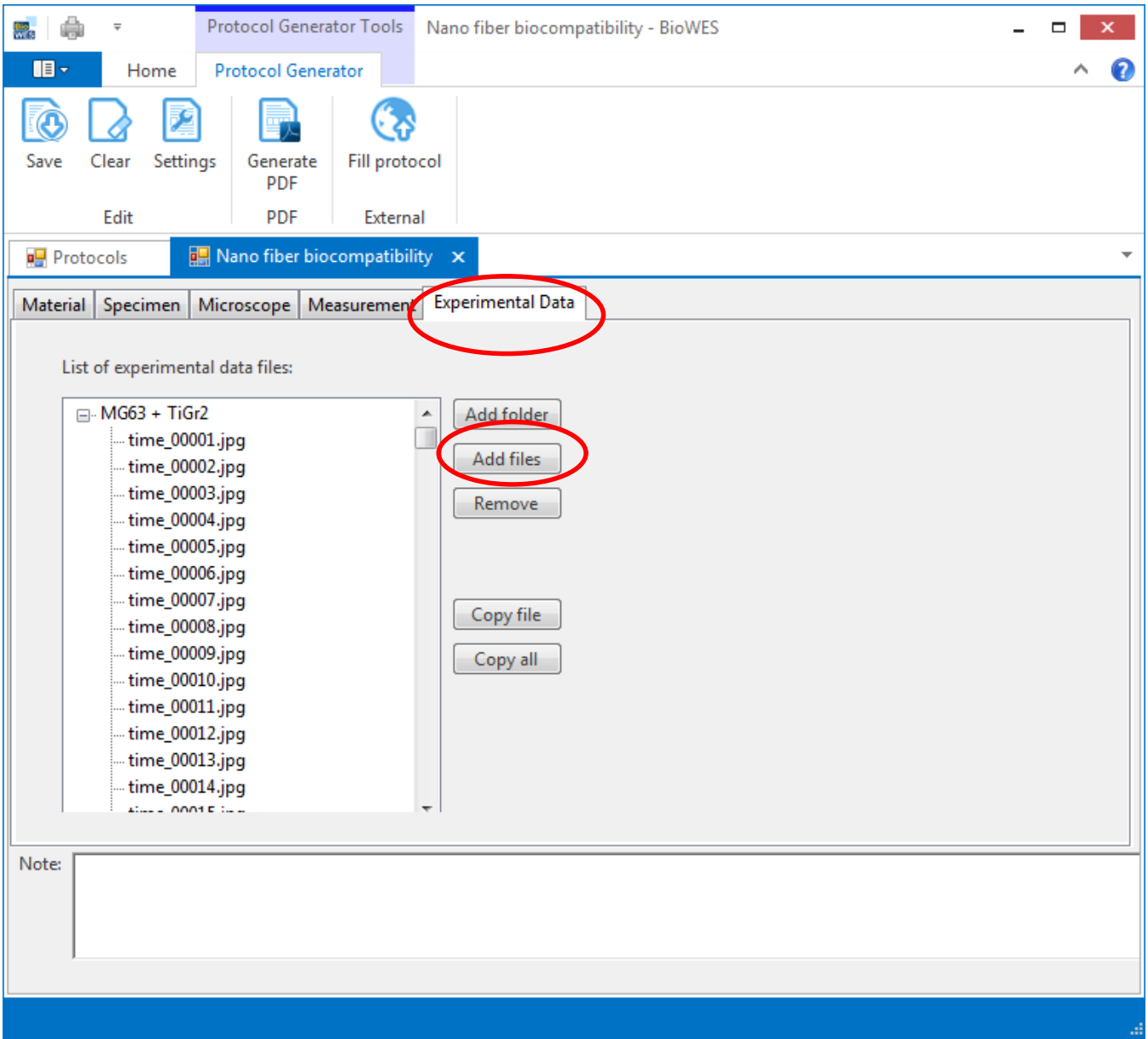
# How to create new protocol from template – fill protocol

- Fill information using plug-in (it has to be defined in template)
- Click on Menu – Fill protocol
- The plug-in will ask for file with external information and try to read it



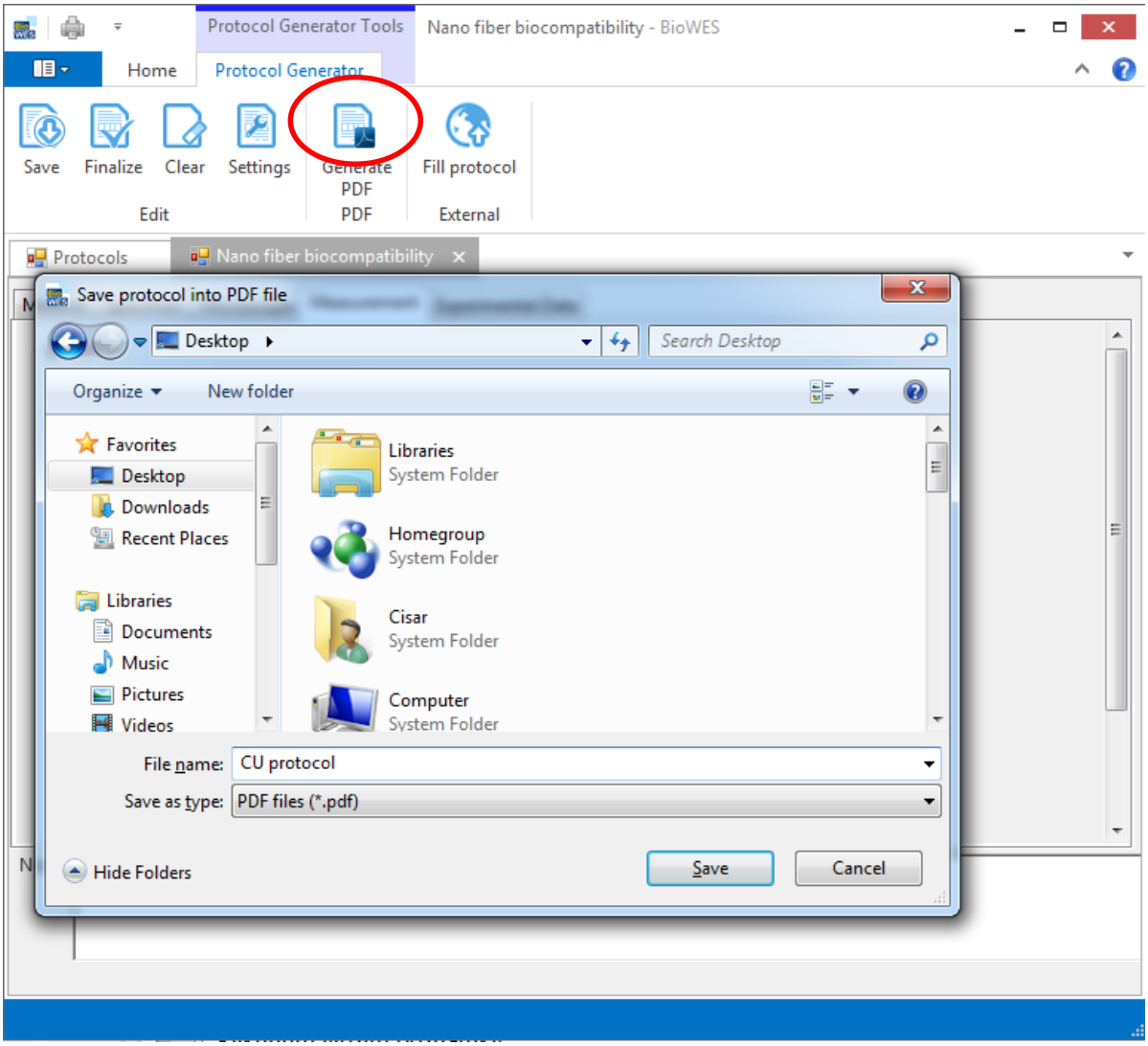
# How to create new protocol from template – attach data

- The tab Experimental data allow user to attach experimental data to the protocol
- The link between protocol (metadata) and data is created



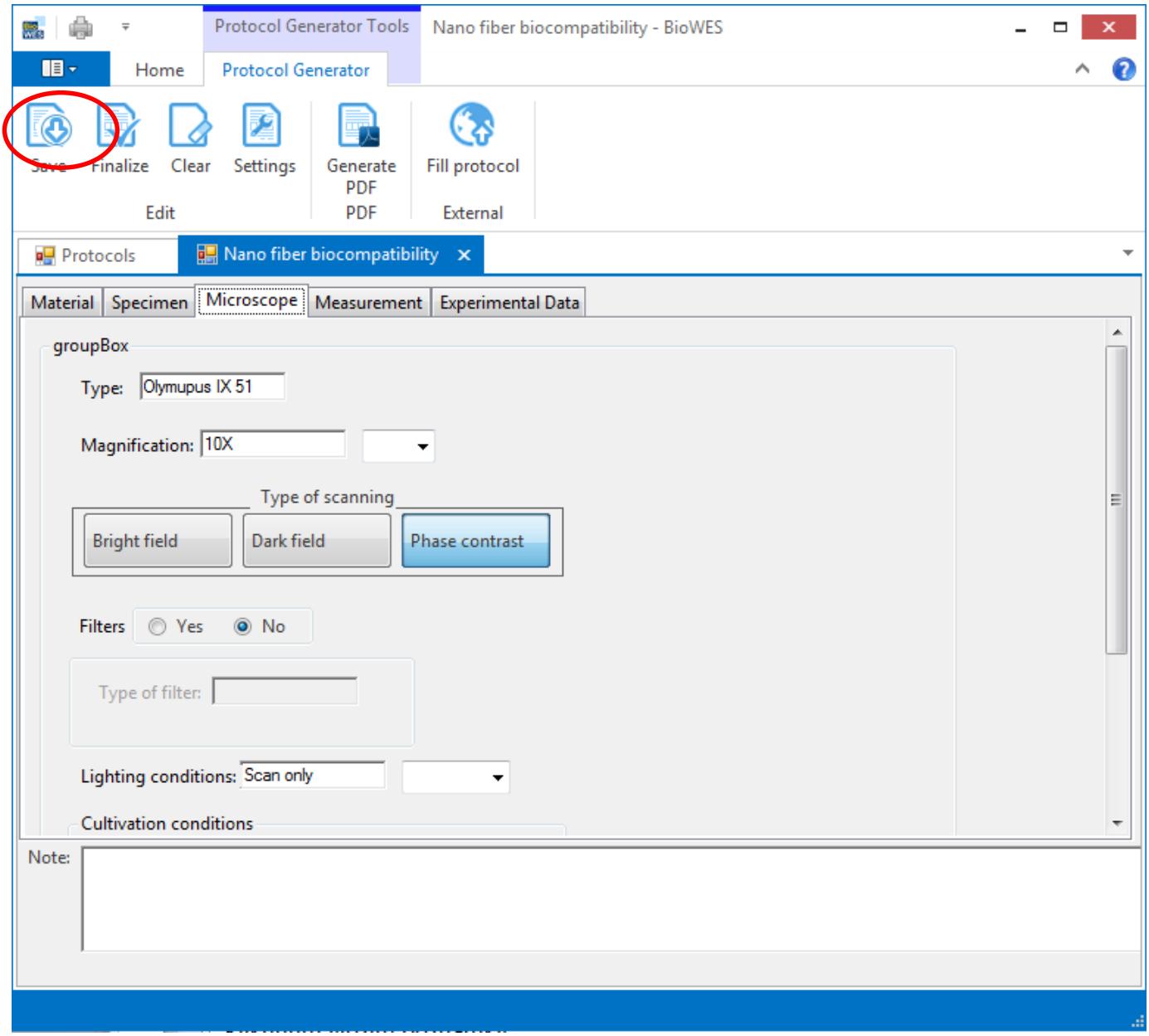
# How to create new protocol from template – PDF

- Protocol can be generated into PDF file for printing in several different formats
- Select Menu – Generate PDF
- See “PDF prinf.pdf” document for more information



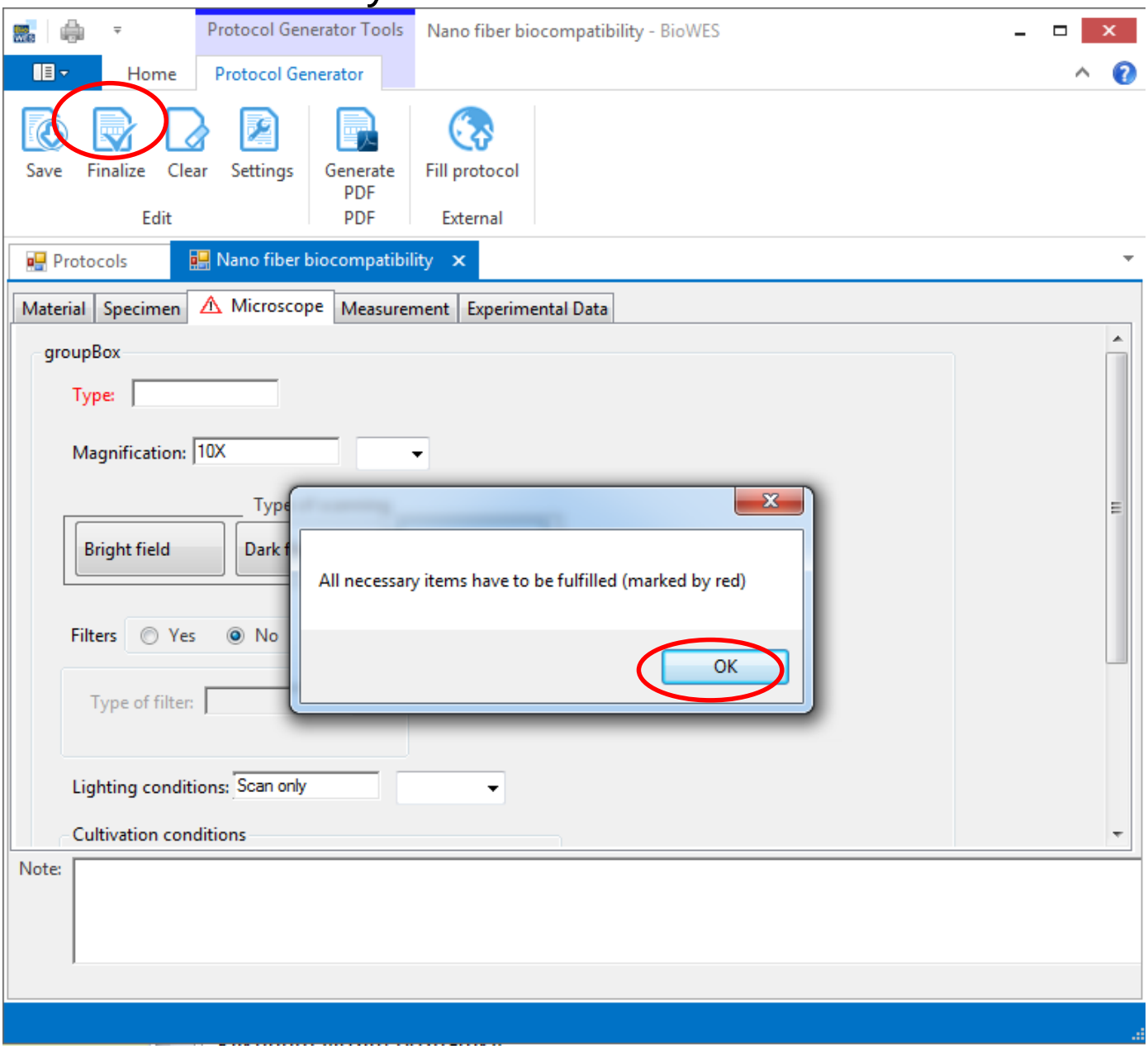
# How to create new protocol from template – Save

- Save protocol and data into local database
- Protocol and data can be still modified



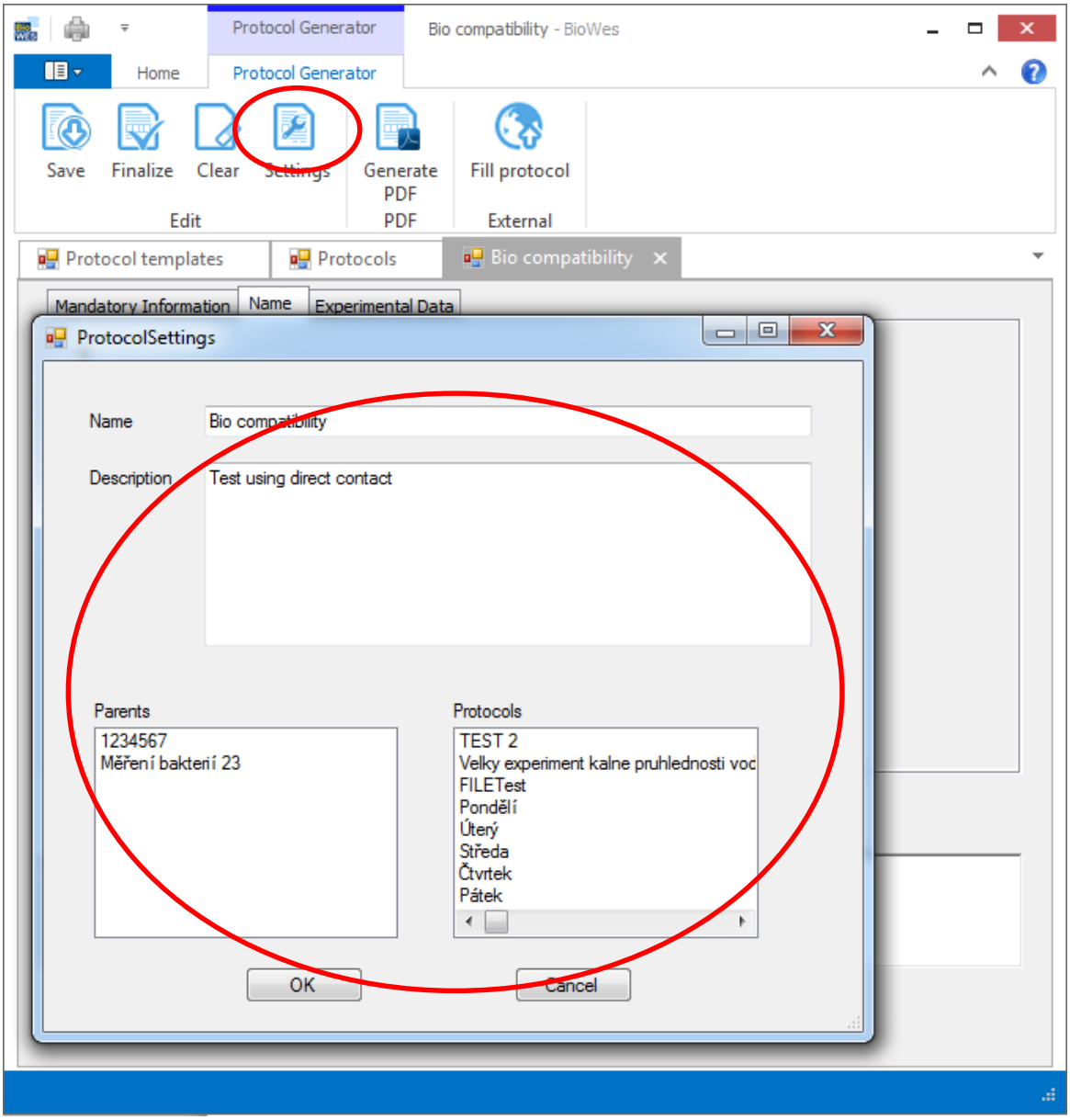
# How to create new protocol from template – Finalize

- Save protocol and data into local database
- Protocol is locked and cannot be modified
- All mandatory fields have to be filled in



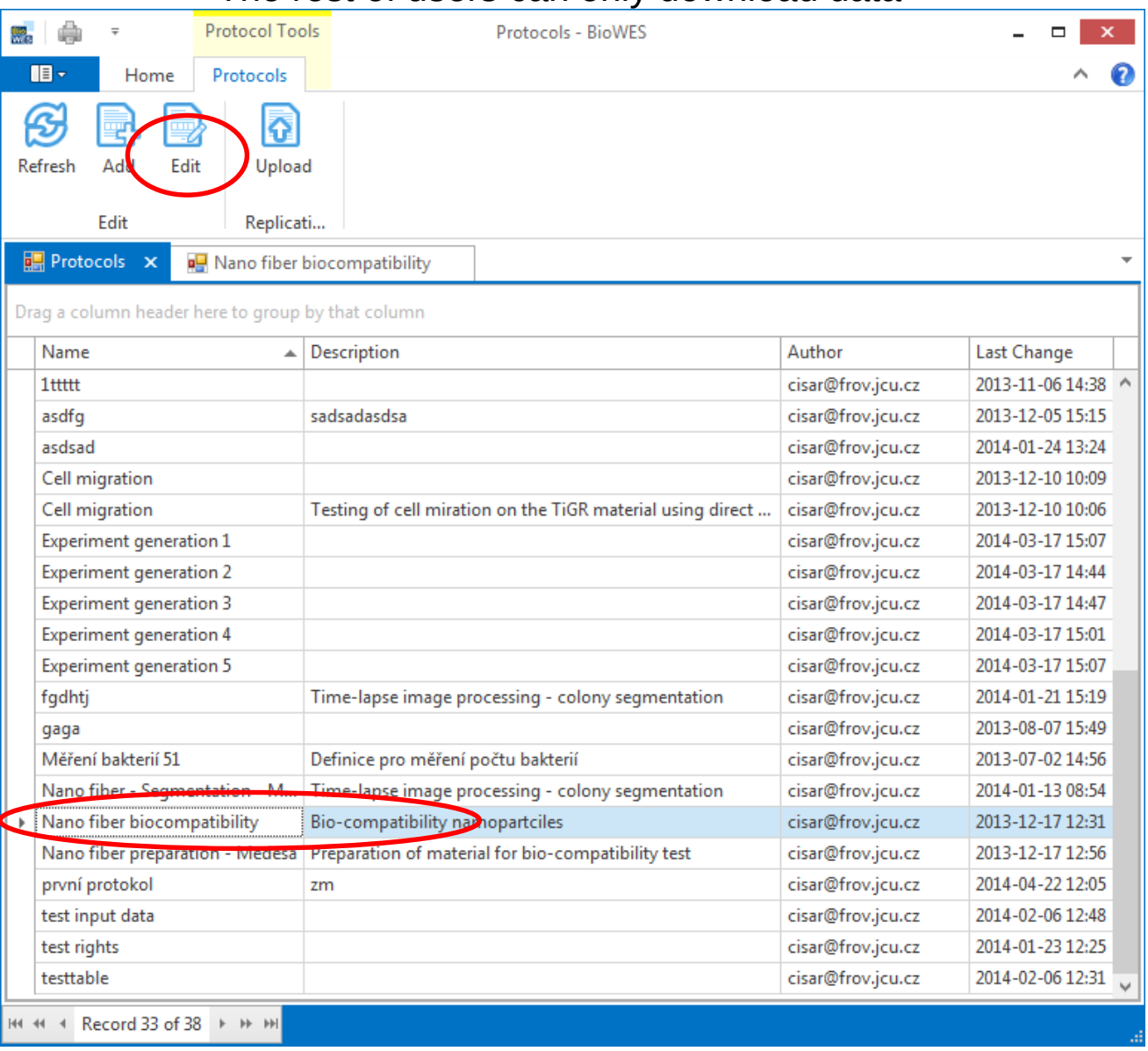
# How to create new protocol from template – settings

- Change name and description of protocol
- Change parents of protocol – concatenation of protocols



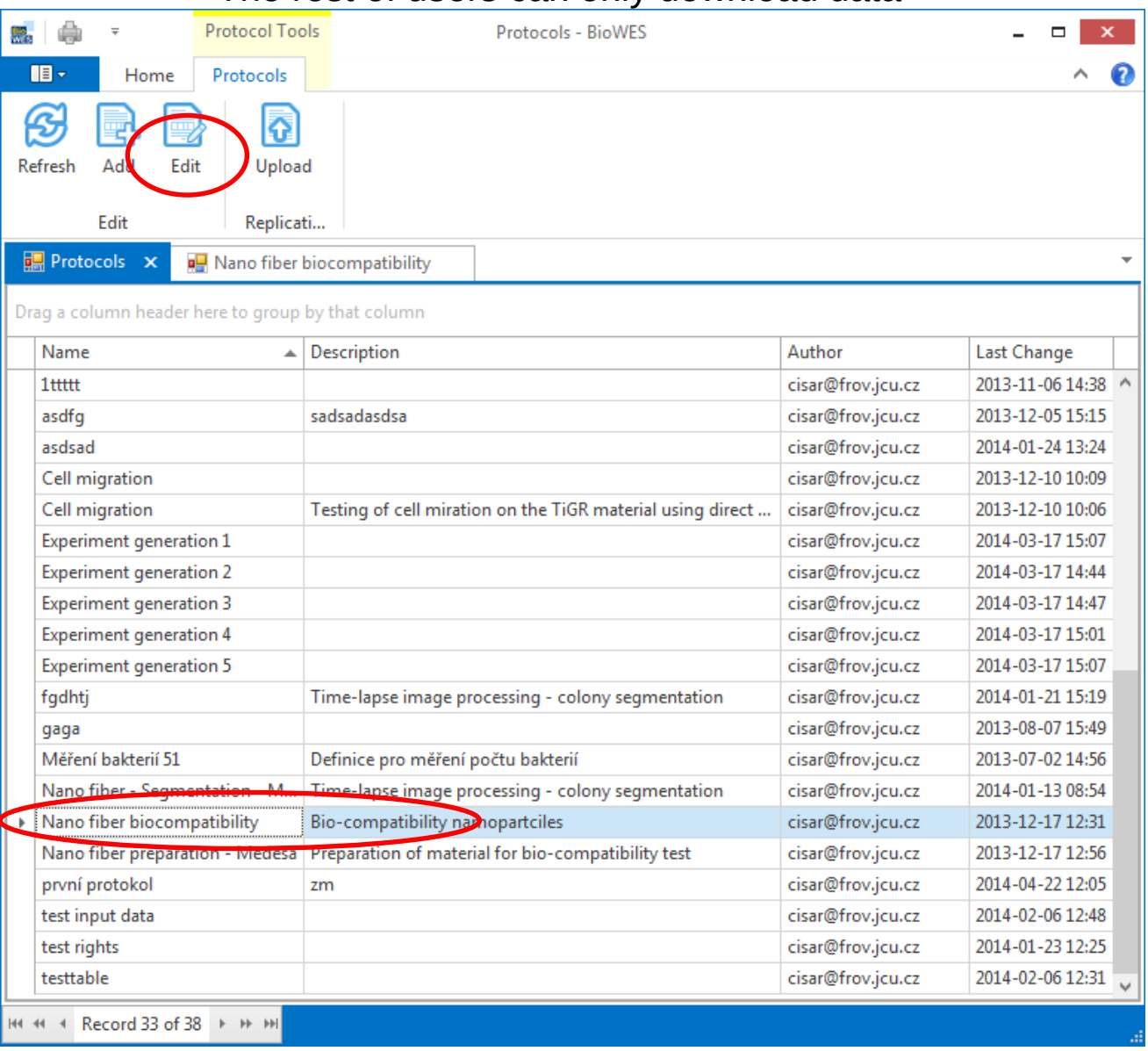
# How to edit/read protocol – protocol generator

- Click on Edit on Protocol tab or double click on protocol
  - Protocol generator tool is executed
  - Only the owner (creator) of protocol can change the protocol
  - The rest of users can only download data



# How to edit/read protocol – protocol generator

- Click on Edit on Protocol tab or double click on protocol
  - Protocol generator tool is executed
  - Only the owner (creator) of protocol can change the protocol
  - The rest of users can only download data



# BioWes

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