



## BIONUMERICS Tutorial:

# Installation and setup of the *Spa typing plugin*

## 1 Introduction

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The *Spa typing plugin* offers extra functionality to BIONUMERICS to do Spa typing for *Staphylococcus aureus*. Sequences in the database can be screened for known spa repeats and types downloaded from the SpaServer, data can be submitted to the SpaServer via a synchronization process, and entries can be clustered based on the spa types. In this tutorial the installation of the *Spa typing plugin* in a new database is covered.

## 2 Creating a new database

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To illustrate the installation and setup of the *Spa typing plugin*, we will start by creating a new, empty database.

1. Double-click on the BIONUMERICS icon () on the desktop.
2. In the *BIONUMERICS Startup* window, press the  button to enter the *New database* wizard.
3. Enter a database name, e.g. "Staphylococcus aureus".
4. Click <**Next**>.

A new dialog box pops up, asking whether to create a new relational database for data storage or to use an existing one.

5. Leave the default option **Create new** enabled and press <**Next**>.

The next dialog asks which database engine should be used for storing data.

6. Select the default option and press <**Finish**>.

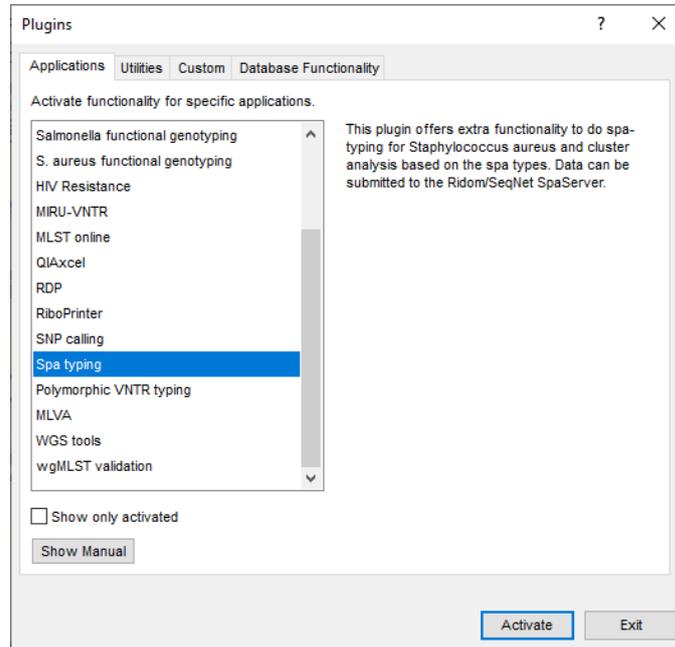
The *Main* window opens with an empty database.

## 3 Installing the Spa-Typing plugin

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1. The *Plugins* dialog box is called from the *Main* window by selecting **File** > **Install / remove plugins...** (.

2. Select the *Spa typing plugin* from the list in the *Applications tab* (Figure 1) and press the **<Activate>** button.



**Figure 1:** Install a plugin in the database.

The next dialog asks to confirm the installation of the *Spa typing plugin*. Installation of the plugin requires administrator privileges on the relational database.

3. Press **<OK>** twice to confirm the installation.

The *Spa typing settings* dialog box pops up (see Figure 2).

4. For this exercise, leave all settings unaltered and press **<OK>**.

BIONUMERICS imports the types and repeats from the Ridom/Seqnet SpaServer.

5. When the *Spa typing plugin* is successfully installed, a confirmation message pops up. Press **<OK>**.
6. Press **<Exit>** to close the *Plugins* dialog box.
7. Close and reopen the database to activate the features of the plugin.

## 4 The Main window after installation of the plugin

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The *Spa typing plugin* installs itself in a menu of the BIONUMERICS software (see Figure 3).

In the *Main* window, some initialization has been done to the database with the installation of the *Spa Typing plugin*:

- The information fields specified in the *Information fields panel* of the *Spa typing settings* dialog box are present in the *Database entries* panel.
- The *Experiment types* panel lists the experiment types. BIONUMERICS has automatically created a sequence type called **Spa-typing** and a character type called **Spa-repsuc** upon installation of the plugin.

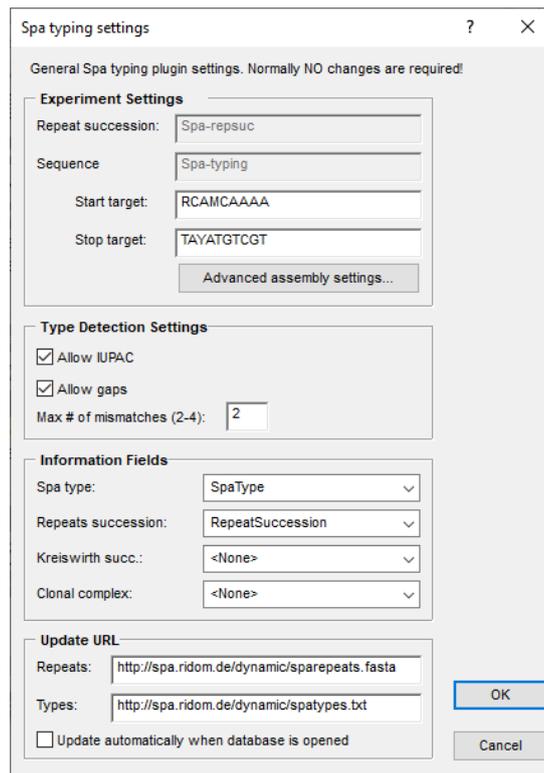


Figure 2: Spa typing settings.

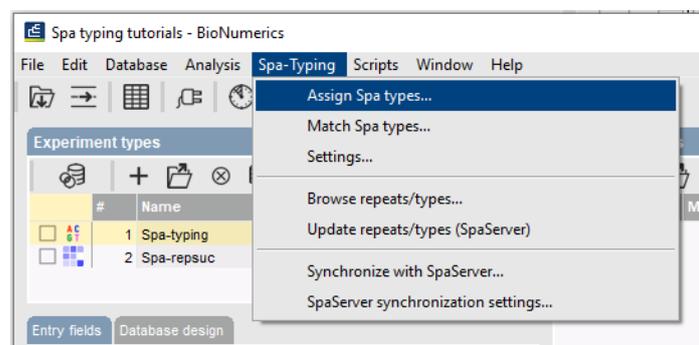
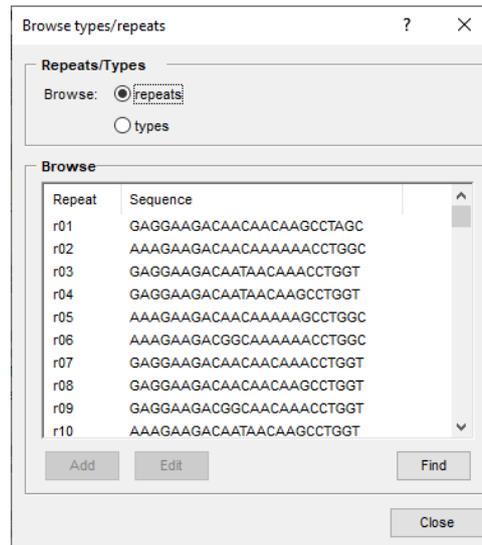


Figure 3: The Spa-Typing menu-items.

1. To call the *Spa typing settings* dialog box again from the *Main* window, select **Spa-Typing** > **Settings**. Press <OK> to close the dialog.

The lists of Spa repeats and Spa types, downloaded from the SpaServer, can be queried by the user.

2. Select **Spa-Typing** > **Browse repeats/types** in the *Main* window.
3. Select **repeats/types** in the *Repeats/Types panel* (see Figure 4) and press the <Find> button to look for a repeat/type.
4. Close the dialog with the <Close> button.
5. The list of known repeats and types can be updated with the command **Spa-Typing** > **Update repeats/types (SpaServer)**.



**Figure 4:** Search for repeats or types.



You can perform analyses without being connected to the internet, but you will be unable to update the list of known repeats and types.