

Fingerprint processing reports plugin

PLUGINS
VERSION 7.6



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NOTES

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- The SPAdes genome assembler version 3.7.1 (<http://bioinf.spbau.ru/spades>).

Chapter 1

Starting and setting up BioNumerics

1.1 Startup program

When BioNumerics is launched from the Windows start panel or when the BioNumerics shortcut () on your computer's desktop is double-clicked, the **Startup program** is run. This program shows the *BioNumerics Startup* window (see Figure 1.1).

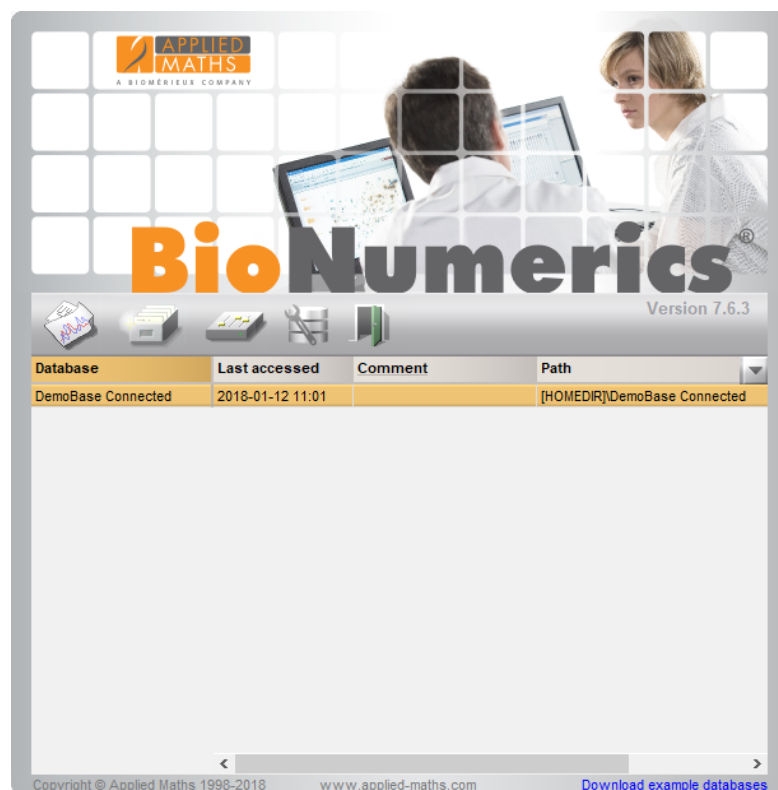


Figure 1.1: The *BioNumerics Startup* window.

A new BioNumerics database is created from the Startup program by pressing the  button.

An existing database is opened in BioNumerics with  or by simply double-clicking on a database name in the list.

1.2 Installing the Fingerprint processing reports plugin

If a database is opened for the first time, the *Plugins* dialog box will appear by default (see Figure 1.2).

If the database has already been opened previously, the *Plugins* dialog box can be called from the *Main* window by selecting **File > Install / remove plugins...** (🔧).

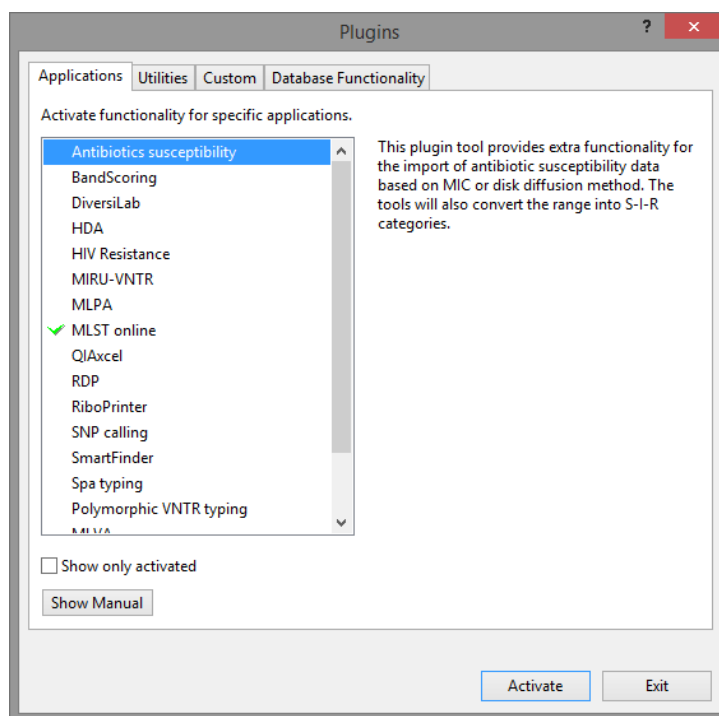


Figure 1.2: The *Plugins* dialog box.

When a particular plugin is selected from the list of plugins, a short description appears in the right panel.

A selected plugin can be installed with the **<Activate>** button. The software will ask for confirmation before installation. Some plugins depend on functionality offered by specific BioNumerics modules. If a required module is missing, the plugin cannot be installed and an error message will be generated.

Once a plugin is installed, it is marked with a green V-sign. It can be removed again with the **<Deactivate>** button.

If the selected plugin is documented, pressing **<Show Manual>** will open its manual in the *Help* window.

2.1 To install the *Fingerprint processing reports plugin* in your database, select the *Utilities tab* and select the *Fingerprint processing reports plugin* from the list of plugins.

2.2 Press the **<Activate>** button, confirm the installation of the plugin and close the *Plugins* dialog box.

2.3 Close and reopen the database to activate the features of the *Fingerprint processing reports plugin*.


The *Fingerprint processing reports plugin* installs menu items in the *Fingerprint processing* window.

Chapter 2

Fingerprint reports

2.1 Print TIFF image

With the **Print TIFF image fingerprint processing report tool**, a gel image can be exported from the *Fingerprint processing* window. The image can be printed or pasted into another application.

- 1.1 Open a fingerprint file that has already been processed by double-clicking on the file in the *Fingerprint files* panel.
- 1.2 Choose **File > Edit fingerprint data...** () to open the *Fingerprint processing* window.
- 1.3 To launch the print tool, select **File > Print TIFF image**. This action will open the *Print gel image* dialog box (see Figure 2.1).

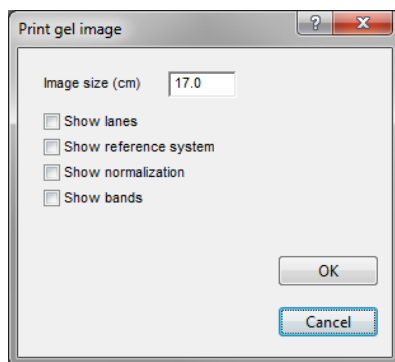


Figure 2.1: The *Print gel image* dialog box.

Following settings are prompted for:

- The **Image size** determines the maximum size without loss of resolution (in cm).
- The **Show lanes** option displays the blue lanes that represent the contours of the lanes, specified in the **Strips** step.
- The **Show reference system** option displays the reference positions defined in the *Normalization* step, along with the green lines indicating the positions across the gel. Reference bands are shown as white spots.
- The **Show normalization** option displays red lines showing the curvature of the gel, as determined by the reference band positions.

- The **Show bands** option displays band assignment from the *Bands* step as white spots on red dashes.

Pressing <OK> opens the *Screen image window* displaying the gel with the selected graphic overlays (see Figure 2.2).

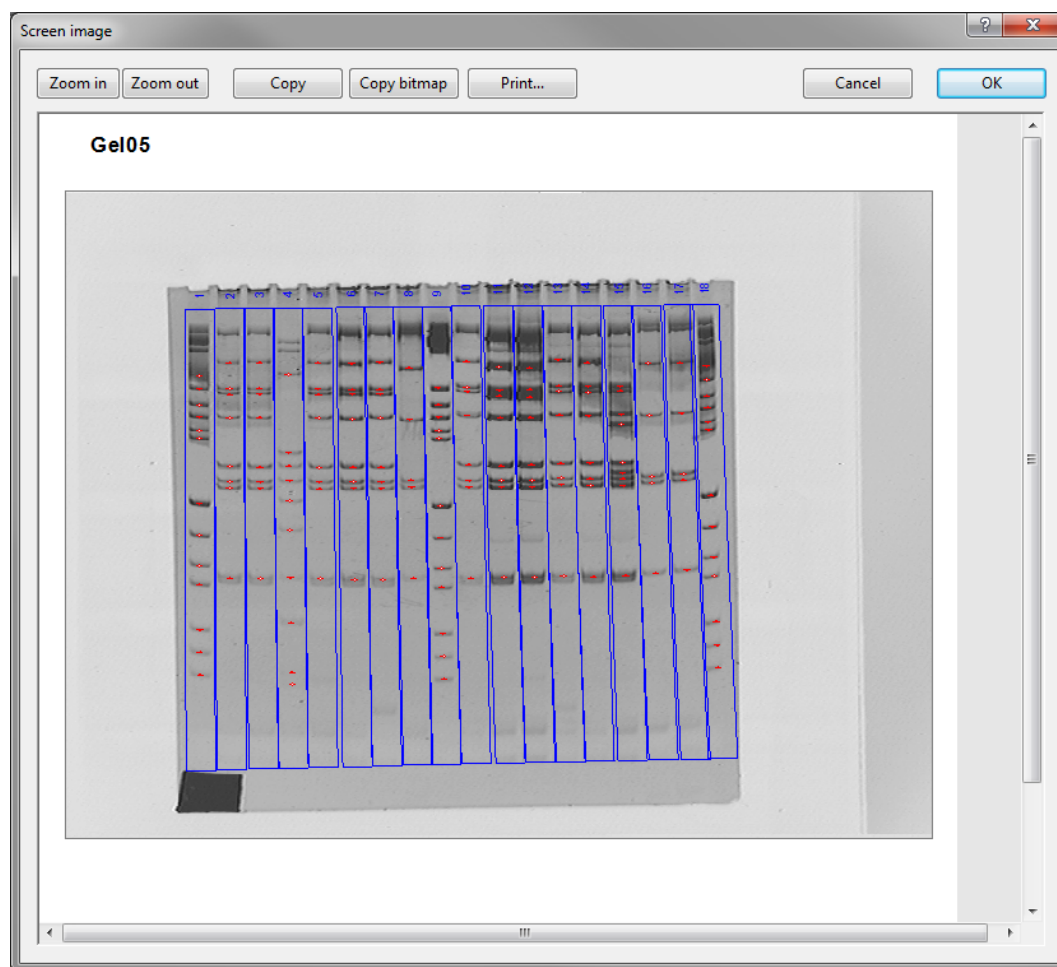


Figure 2.2: The *Screen image window*, displaying a TIFF gel image, the lanes and the bands.

The gel image can be copied to the clipboard as enhanced metafile (**Copy**) or bitmap (**Copy bitmap**), or printed (**Print**).

With the zoom buttons you can zoom in or out on the image.

To close the window press the <OK> button.

2.2 Print curve

With the **Print curve fingerprint processing report tool** a densitometric curve can be exported from the *Curves* step in the *Fingerprint processing* window.

2.1 Open a fingerprint file that has already been processed by double-clicking on the file in the *Fingerprint files* panel.

2.2 Choose **File > Edit fingerprint data...** (📄) to open the *Fingerprint processing* window.

2.3 Select a lane in the *Curves* step in the *Fingerprint processing* window to export.

2.4 To launch the print tool, select **Curves > Print curve**. This action will open the *Screen image* window (see Figure 2.3).

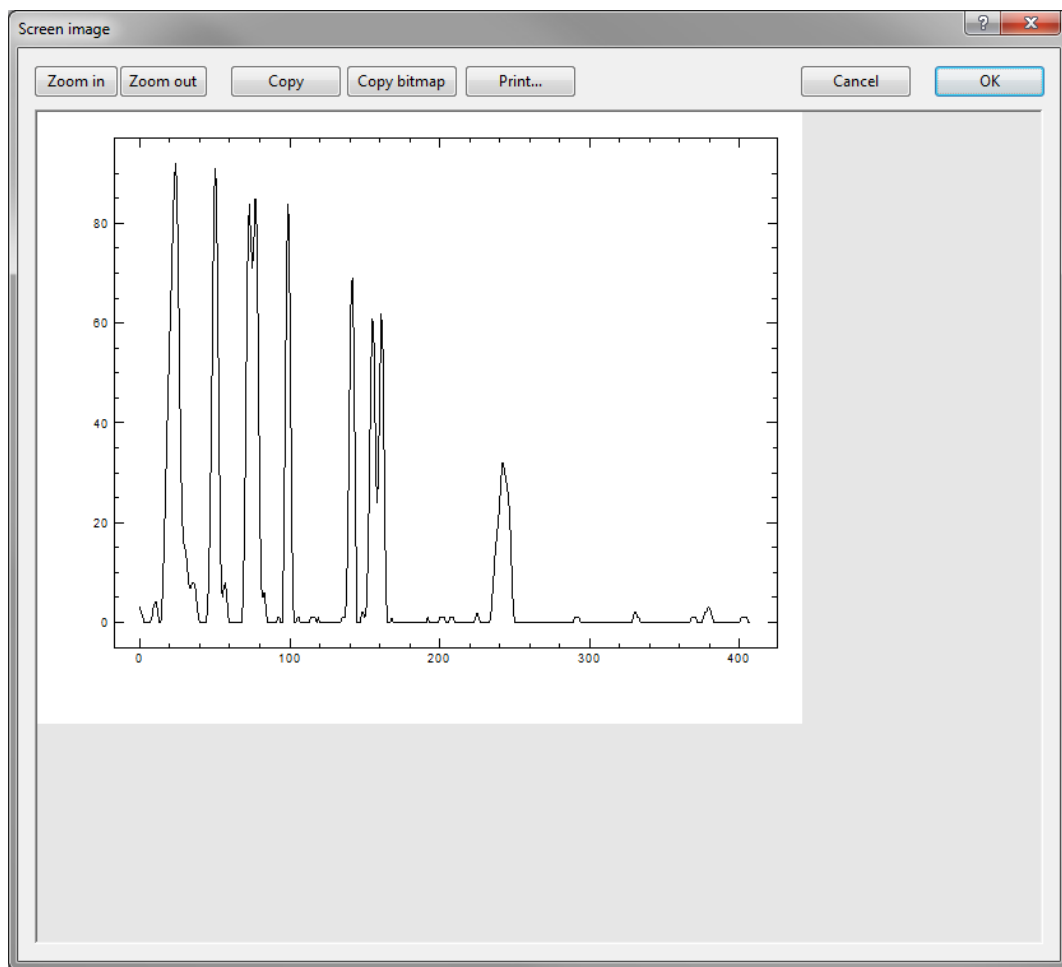


Figure 2.3: The *Screen image* window, displaying a densitometric curve.

The *Screen image* window displays the densitometric curve with optical density on the Y-axis and position on the X-axis.

The curve image can be copied to the clipboard as enhanced metafile (**Copy**) or bitmap (**Copy bitmap**), or printed (**Print**).

With the zoom buttons you can zoom in or out on the image.

To close the *Screen image* window press the <**OK**> button.

2.3 Show normalization vector

With the **Show normalization vector fingerprint processing tool**, a line graph showing the local distortion along a lane due to normalization can be exported. This tool is useful for demonstrating the relationship between position and gel distortion. For example: bands near the bottom of a gel are sometimes more variable in position than bands near the top.

3.1 Open a fingerprint file that has already been processed by double-clicking on the file in the *Fingerprint files* panel.

3.2 Choose **File > Edit fingerprint data...** (📄) to open the *Fingerprint processing* window.

3.3 Select a lane in the *Normalization* step in the *Fingerprint processing* window.

3.4 To launch the print tool, select **Normalization** > **Show normalization vector**. This action will open the *Screen image* window (see Figure 2.4).

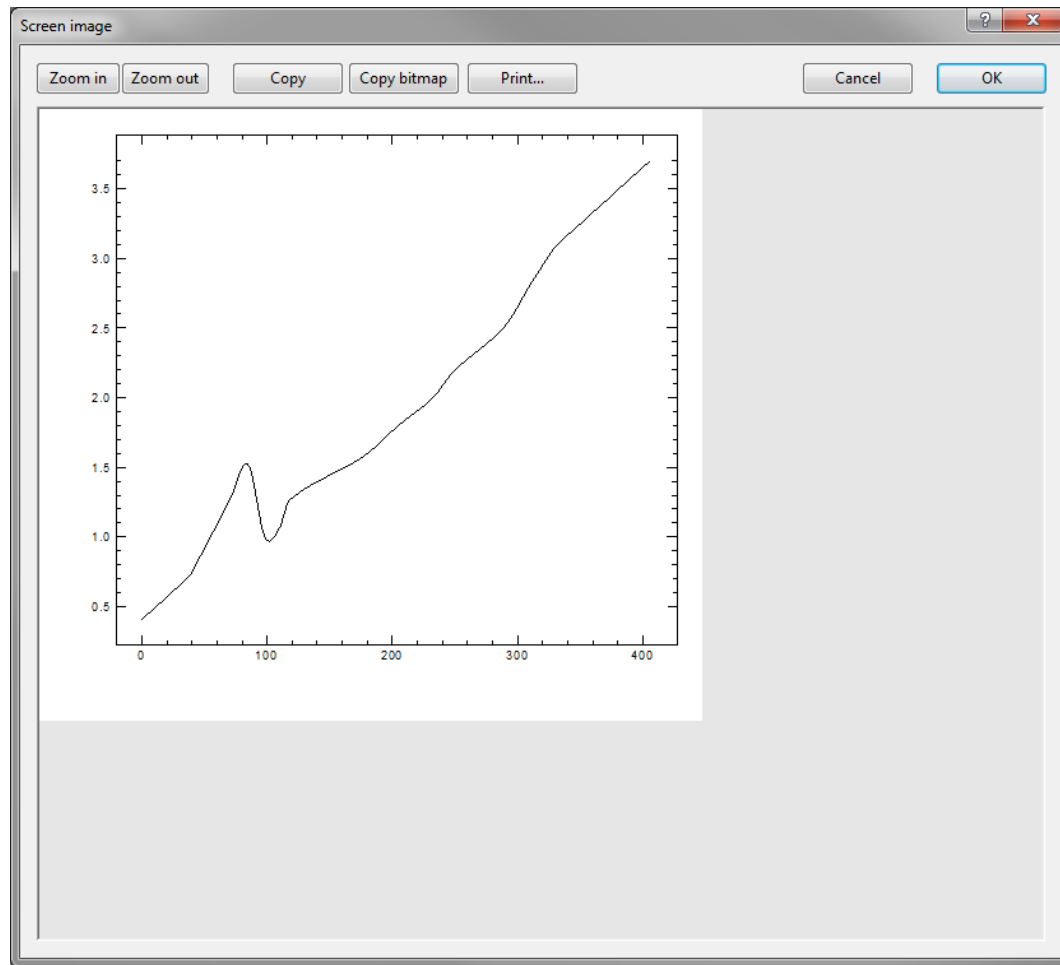


Figure 2.4: The *Screen image* window, displaying normalization vectors.

The *Screen image* window shows a graph of the amount of distortion along the selected lane, with normalized position (relative to the original position) on the Y-axis, and absolute position on the X-axis.

The image can be copied to the clipboard as enhanced metafile (**Copy**) or bitmap (**Copy bitmap**), or printed (**Print**).

With the zoom buttons you can zoom in or out on the image.

To close the *Screen image* window press the <**OK**> button.



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