Real-Time Bridge Monitoring
User Guide

Version 1.4

Revision History

Date	Version	Description	Author
2013-12-12	1.1	First Setup of the document	Andrea Bottoli
2014-01-13	1.2	1. Introduction	Miraldi Fifo
2014-01-13	1.3	1.5. Definitions - deleted 1.5. References - added 3.1. External User 3.3. Engineer	Dzana Kujan
2014-01-14	1.4	2 – deleted 2.2. Operator 2.3. Engineer 2.4. Administrator	Dzana Kujan

Table Of Contents

1. Introduction

1.1 Purpose of this document

The purpose of this document is to provide a first guide on how the user can use our product. The document also highlights the fuctionalities of the product.

1.2 Document organization

The document is organized as follows:

- Section 1, *Introduction,* describes contents of this guide, used documentation during developing process etc.
- Section 2, *First Setup*, describes the first steps to perform in order to use in the correct way the product.
- Section 3, *Usage of the product*, describes how to use the web site of our product.

1.3 Intended Audience

The intended audience is:

- The customers
- Anyone that wants to use this product

1.4 Scope

The document addresses only the functionalities of the product and provides a guide that can help the user to use the product. It does not address the guide of installation. For more details on that consult the installation guide.

1.5 References

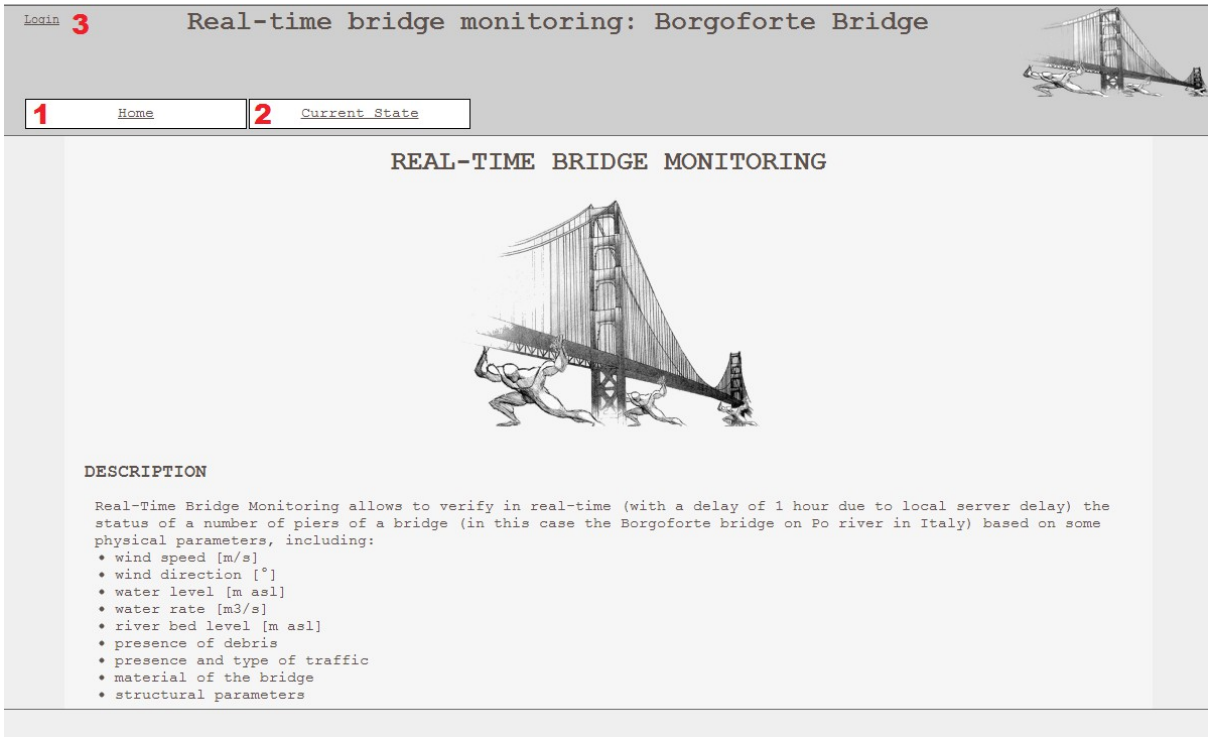
- Project site
  - www.fer.unizg.hr/rasip/dsd/projects/real-time_bridge_monitoring
- Documentation
  - http://www.fer.unizg.hr/rasip/dsd/projects/real-time_bridge_monitoring/documents
- Application site
  - 161.53.67.134/BridgeMonitoring/

2. Usage of the product

2.1 External User

2.1.1 Home page

When entering the site for the first time as an external user, the initial page that is opened is the home page, which can be seen on the picture below. Here, a short description of the product is given and a presentation of all team members that worked on its implementation, as well as contact and license information.



From here, it is possible to click on:

1. Home

   This action will leave you on the home page

2. Current State (2.1.2)

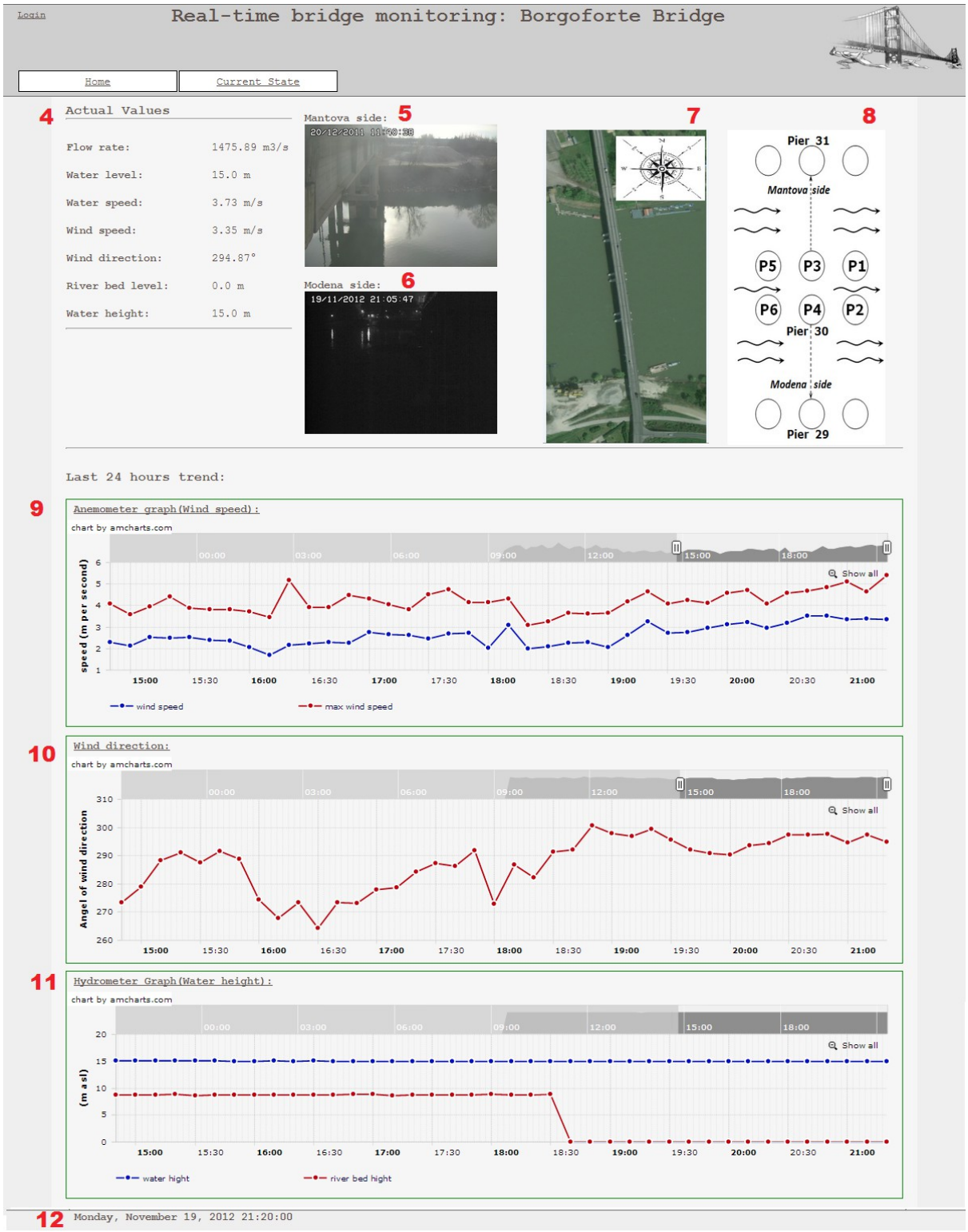
   This action will take you to the “Current State” page, where you can view the current status of the bridge

3. Log-in (2.1.3)

   This action will take you to the “Log-in” page where you can log into the site with a valid user-name and password

2.1.2. View current bridge status

When clicking on the current state button (2), the following page is shown:

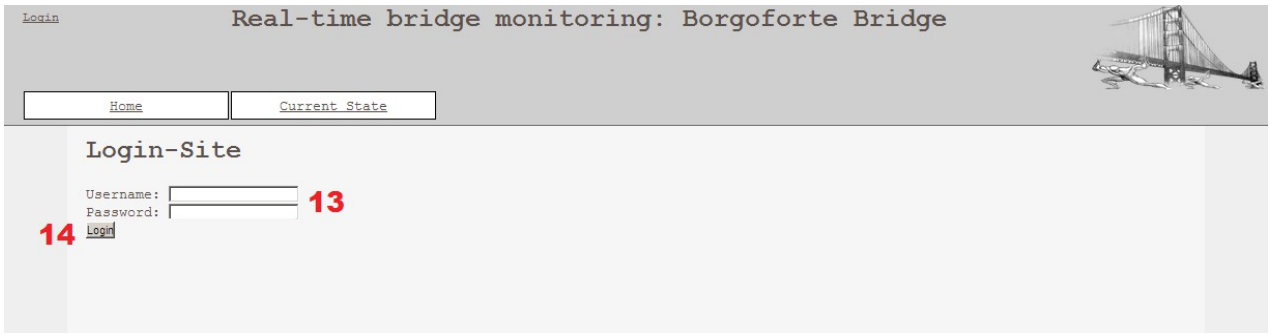


The elements on this page represent the following:

4. The latest values that are read from the sensors
5. The latest picture taken from the camera on the Mantova side of the bridge
6. The latest picture taken from the camera on the Modena side of the bridge
7. A picture from Google maps of the Borgoforte bridge
8. A picture representing the structure of the bridge
9. Graph representing the last 24 hours wind speed and max wind speed, detected by the anemometer. On this graph, ten minute data is displayed, and the unit for the wind speed is mps (meter per second)
10. Graph representing the last 24 hours wind direction. On this graph, ten minute data is displayed and the wind direction is presented in angles
11. Graph representing the last 24 hours water height and river bed height, detected by the hydrometer. On this graph, ten minute data is displayed
12. Label which marks the date and time of the last parsed data from the database

2.1.3. Log in as a registered user

When clicking on the log-in button (3), the following page is shown:



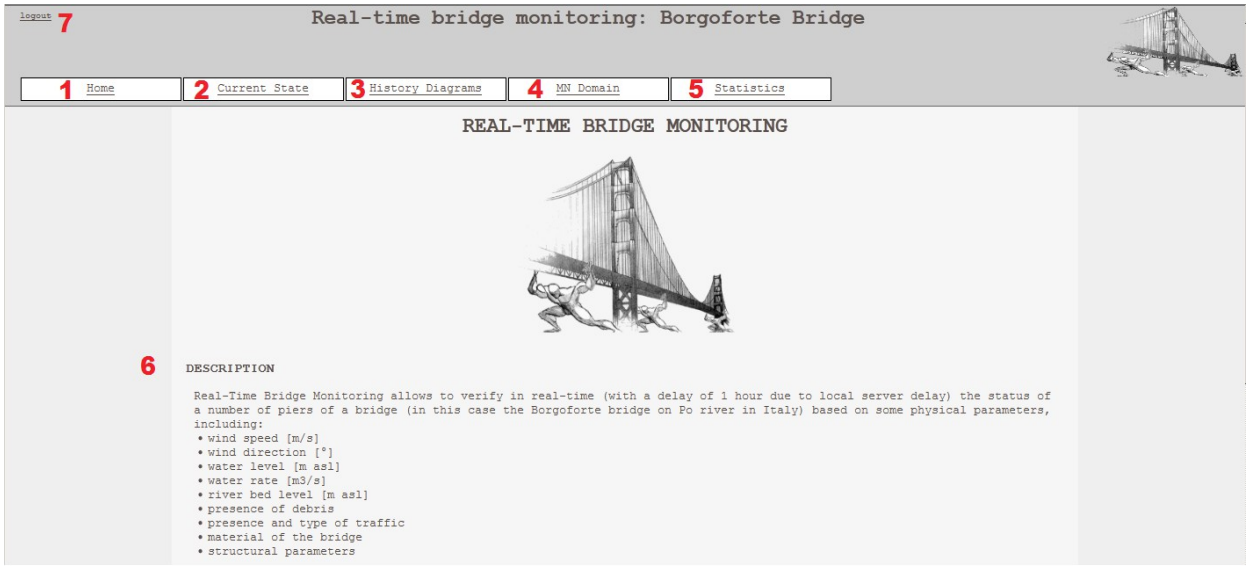
The elements on this page represent the following:

13. User-name and Password fields
14. Log-in button. If the user-name and password are correct, a click on this button will redirect the user to the appropriate page for the user that is chosen

2.2 Operator

2.2.1. Home page

When entering the site for the first time as the operator, the initial page that is opened is the home page for the operator, which can be seen on the picture below. The information that is written on the home page for the operator is the same as the information for the external user. The difference is that the operator has additional tabs.



From the home page, the operator is able to click on:

1. Home

   This action will leave you on the home page

2. Current State (2.2.2)

   This action will take you to the “Current State” page, where you can view the current status of the bridge

3. History diagrams (2.2.3)

   This action will take you to the “History View” page, where you can view historical data of the bridge

4. MN Domain (2.2.4)

   This action will take you to the “MN Domain View” where the latest MN domain is presented

5. Statistics (2.2.5)

   This action will take you to the statistics page, which contains interesting statistical data about the product

6. The description of the product.

7. Log-out (2.2.6)

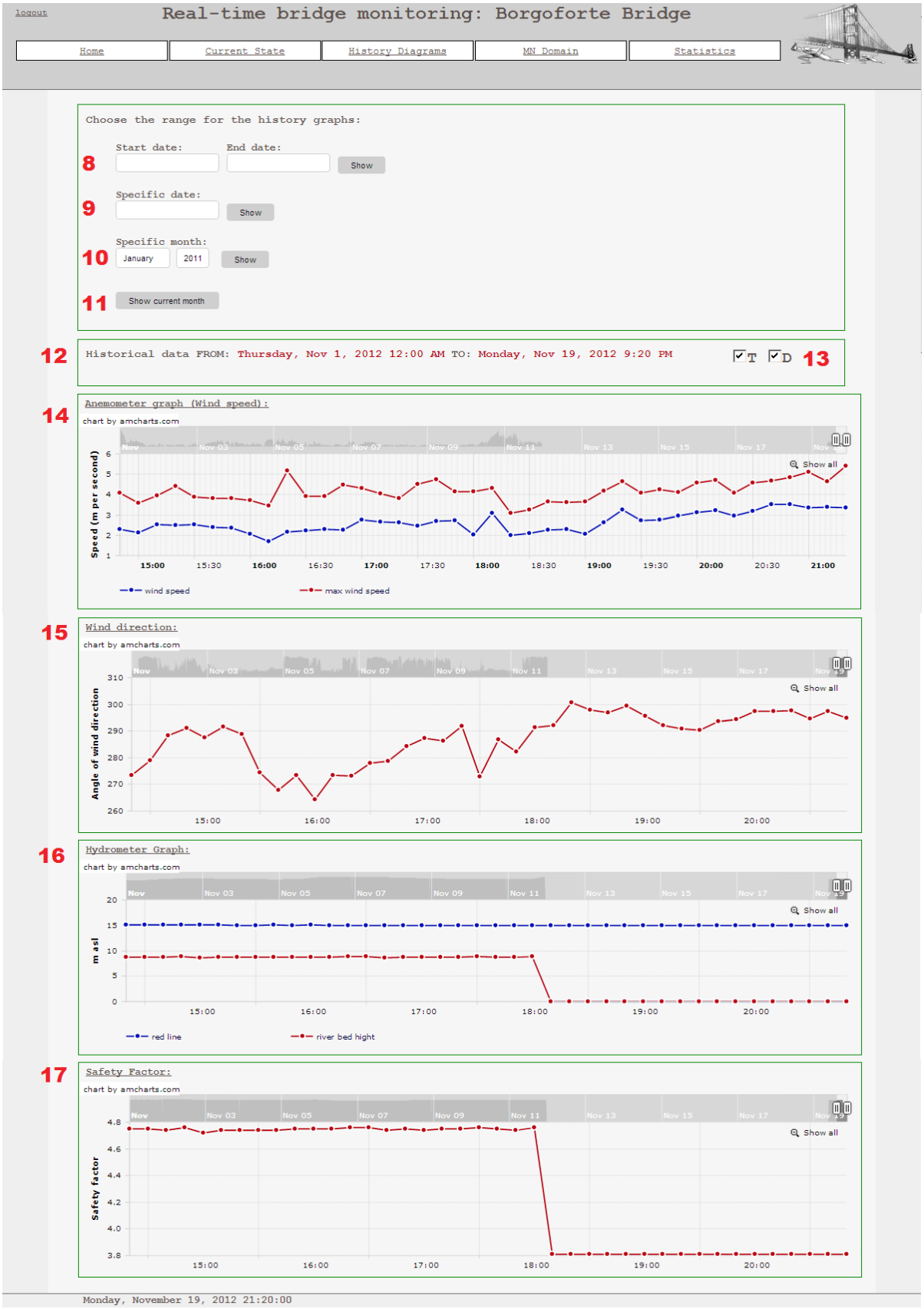
   This action will log you out instantly

2.2.2. View current bridge status

The “Current State” page is the same for both the operator and external user, and is explained in section 3.1., External User.

2.2.3. View history diagrams

When clicking on the “History Diagrams” tab (3), the following page is opened.

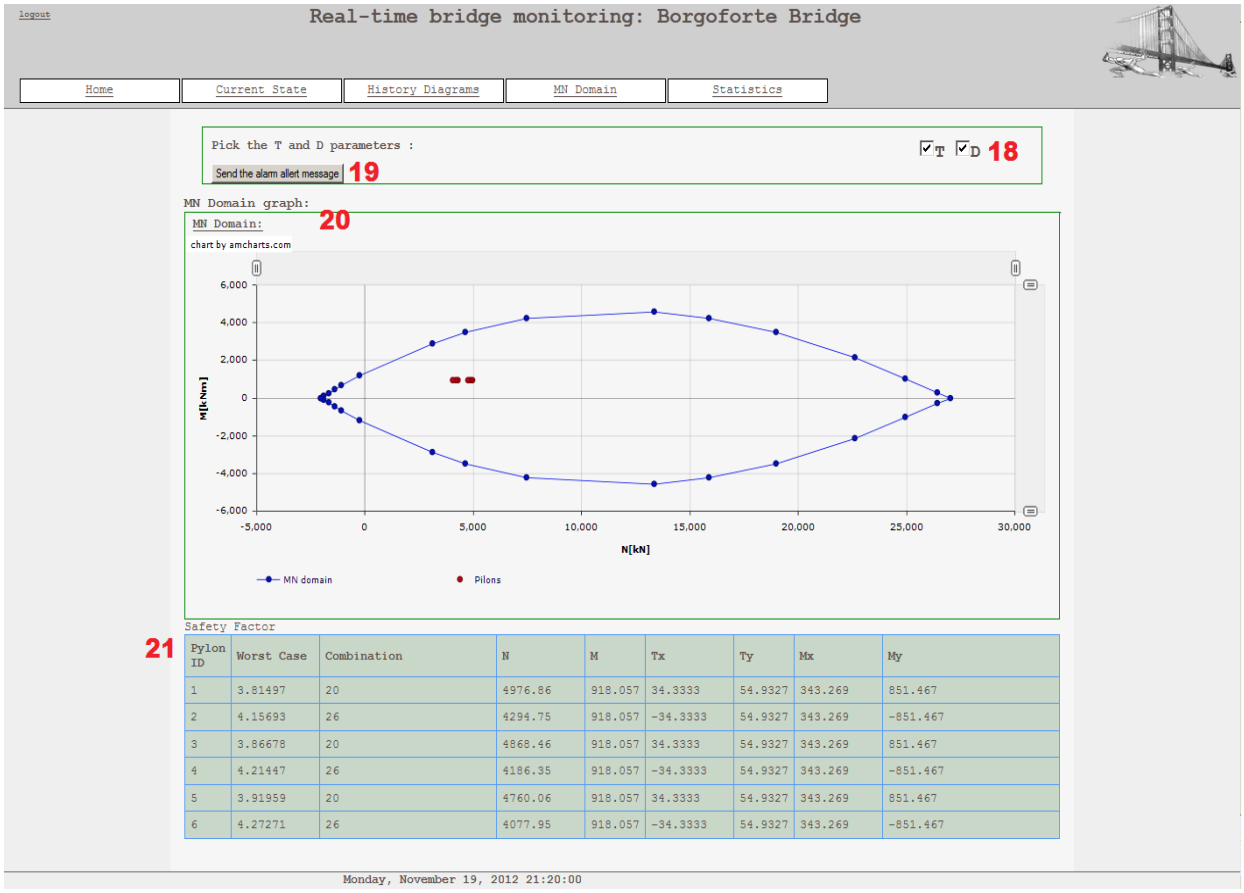


The elements on this page represent the following:

8. The user can choose a range between two dates for which he wishes to see the history data. Enter a start date and an end date and click on “Show”.
9. The user can choose a specific date for which he wishes to see the history data. The data will be ten minutes data for that day. Enter the specific date and click on “Show”.
10. The user can choose a specific month for which he wishes to see the history data. The data will be ten minutes data for that month. Enter the month and the year and click on “Show”.
11. The user can choose to view historical data for the current month by clicking on “View current month”.
12. This is a label telling the range of historical data that is shown in the graphs.
13. It is possible to change the T (traffic) and D (debris) parameters. Changing of these values results in the change of all the historical graphs.
14. Graph representing the wind speed and maximum wind speed for the chosen range. On this graph, ten minute data is displayed and the wind speed is presented in mps (meters per second).
15. Graph representing the wind direction for the chosen range. On this graph, ten minute data is displayed and the wind direction is presented in angles.
16. Graph representing the water height and river bed height for the chosen range, detected by the hydrometer. On this graph, ten minute data is displayed.
17. Graph representing the safety factor for the chosen range. On this graph, ten minute data is displayed.

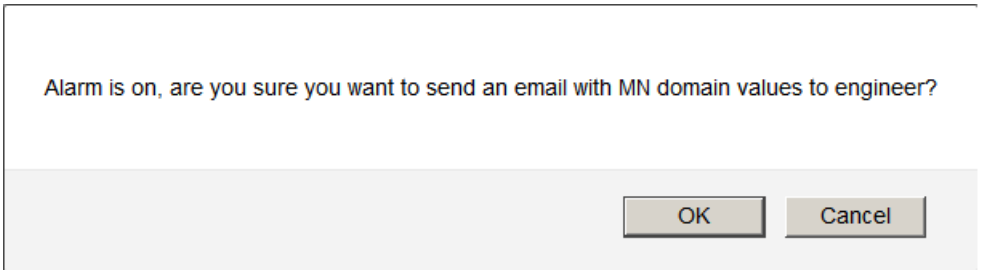
2.2.4. View MN domain

The following picture presents the “MN Domain” page, that is presented when clicking on the MN domain tab (4).



The operator is able to do the following:

18. Change the T (traffic) and D (debris) parameters. Changing of these values results in the change of data in the safety factor table (21)
19. Click on “Send the alarm alert message (19) will result in a pop-up window which allows the operator to send an alert to the responsible person. The pop-up window is presented below. In order to send the alarm, the operator must click on the “OK” button



20. View the MN domain. All of the pylons are presented with respect to their location in the MN domain, so the operator is able to see whether some of the pylons are in danger
21. View the safety factor table, representing the safety factor along with other parameters characteristic for each of the six pylons

2.2.5. View statistics

When the operator clicks on the Statistics tab (6), the following page is presented.

On this page, there is statistical data regarding the parsed files and their values that are located in the database.

2.2.6 Log out

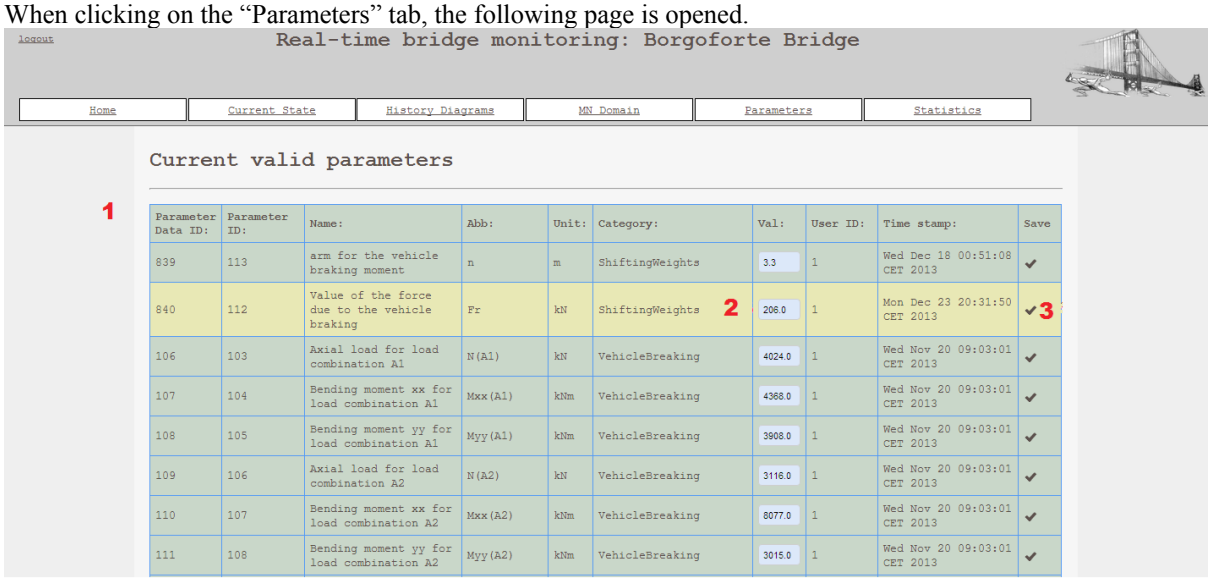
By clicking on the Log-out button (7), the operator is instantly logged out, and becomes an external user with limited privileges.

2.3 Engineer

The engineer can access the same functionalities as the operator, and an additional one. When the engineer logs in, he gets an additional tab “Parameters”, which takes him to the parameters site where he can edit the existing parameters from the database.

2.3.1. View and update parameters

When clicking on the “Parameters” tab, the following page is opened.



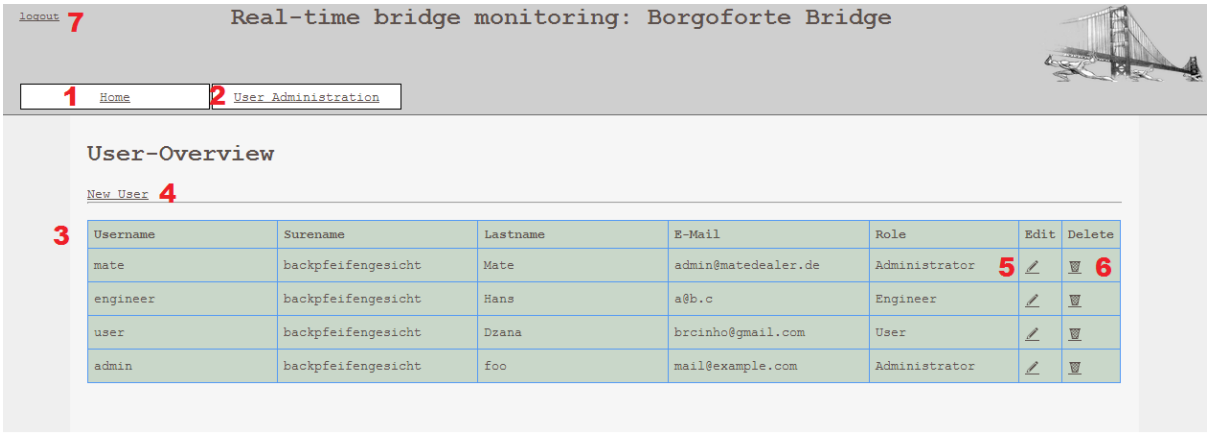
Parameter Data ID:	Parameter ID:	Name:	Abb:	Unit:	Category:	Val:	User ID:	Time stamp:	Save
839	113	arm for the vehicle braking moment	n	m	ShiftingWeights	3.3	1	Wed Dec 18 00:51:08 CET 2013	✔
840	112	Value of the force due to the vehicle braking	Fr	kN	ShiftingWeights	206.0	1	Mon Dec 23 20:31:50 CET 2013	✔
106	103	Axial load for load combination A1	N(A1)	kN	VehicleBreaking	4024.0	1	Wed Nov 20 09:03:01 CET 2013	✔
107	104	Bending moment xx for load combination A1	Mxx(A1)	kNm	VehicleBreaking	4368.0	1	Wed Nov 20 09:03:01 CET 2013	✔
108	105	Bending moment yy for load combination A1	Myy(A1)	kNm	VehicleBreaking	3908.0	1	Wed Nov 20 09:03:01 CET 2013	✔
109	106	Axial load for load combination A2	N(A2)	kN	VehicleBreaking	3116.0	1	Wed Nov 20 09:03:01 CET 2013	✔
110	107	Bending moment xx for load combination A2	Mxx(A2)	kNm	VehicleBreaking	6077.0	1	Wed Nov 20 09:03:01 CET 2013	✔
111	108	Bending moment yy for load combination A2	Myy(A2)	kNm	VehicleBreaking	3015.0	1	Wed Nov 20 09:03:01 CET 2013	✔

The elements on this page represent the following:

1. The engineer can view the table containing information about all the parameters that are present in the database.
2. The engineer can change the value of each parameter.
3. In order to save the changed value, the engineer clicks on the check-mark (3).

2.4 Administrator

If the user logs in as an administrator, then the following page is opened.

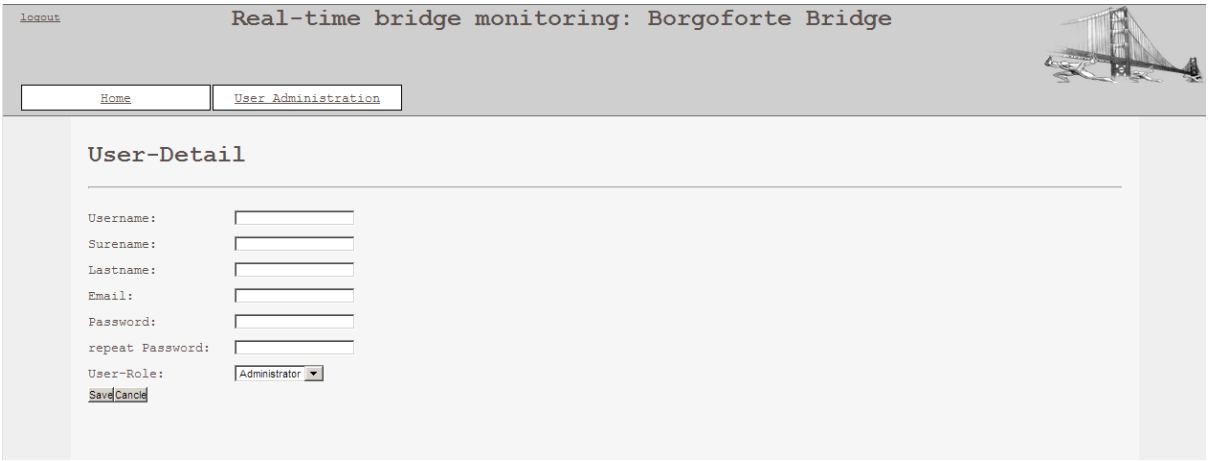


The elements on the page have the following meanings:

1. “Home” tab. The home tab for the administrator is the same as for all the other users.
2. “User Administration” tab is the default tab that is opened when the administrator logs in, and it is presented in the picture above.
3. The table of information about all the users that are registered in the system.
4. Link “New User”, which the administrator can click on if he wishes to register a new user in the system. (2.4.1.)
5. “Edit” icon, which the administrator can click on if he wishes to edit the specific user. (2.4.2.)
6. “Delete” icon, which the administrator can click on if he wishes to delete the specific user.
7. “Logout” button, for logging out and becoming an external user with limited privileges.

2.4.1 Add new user

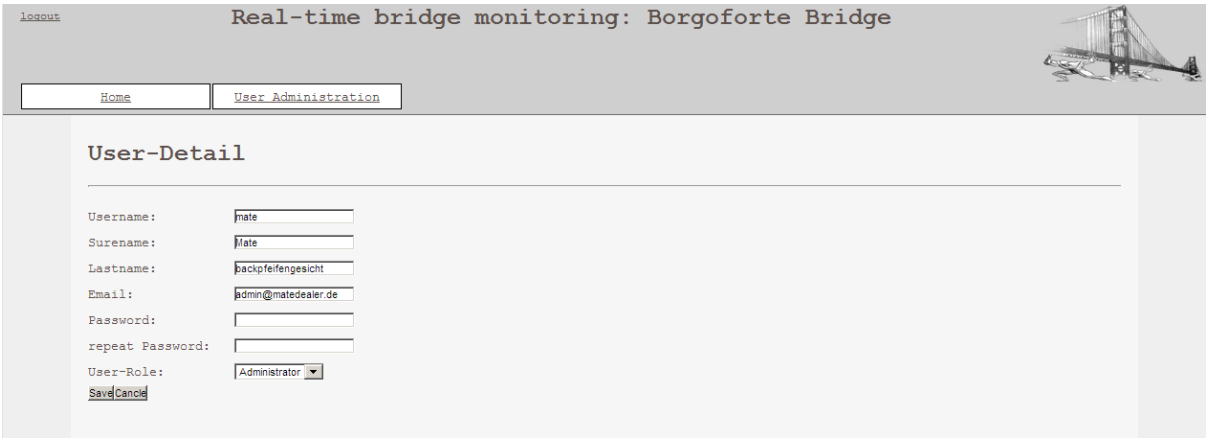
When clicking on link “New User” (4), the following page opens.



On this page, the administrator can enter the username, surename, last name, email, password, and choose between existing user roles for the new user that he wishes to create. In order to save the entered information and finish the process of creating a new user, the administrator must click on the “Save” button. If he wishes to abort the process, he must click on the “Cancel” button.

2.4.2 Edit user

When clicking on the “Edit user” icon (5), the following page is opened.



On this page, the administrator can change the username, surename, last name, email, password and choose a different user role among the existing ones, for the user that he selected. In order to save the changed information and finish the process of editing the chosen user, the administrator must click on the “Save” button. If he wishes to abort the process, he must click on the “Cancel” button. In this case, the old information about the user will stay unchanged.