Real-Time Bridge Monitoring
User Guide

Version 1.3

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

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. First Setup

2.1 Linux Version

2.2 Windows Version

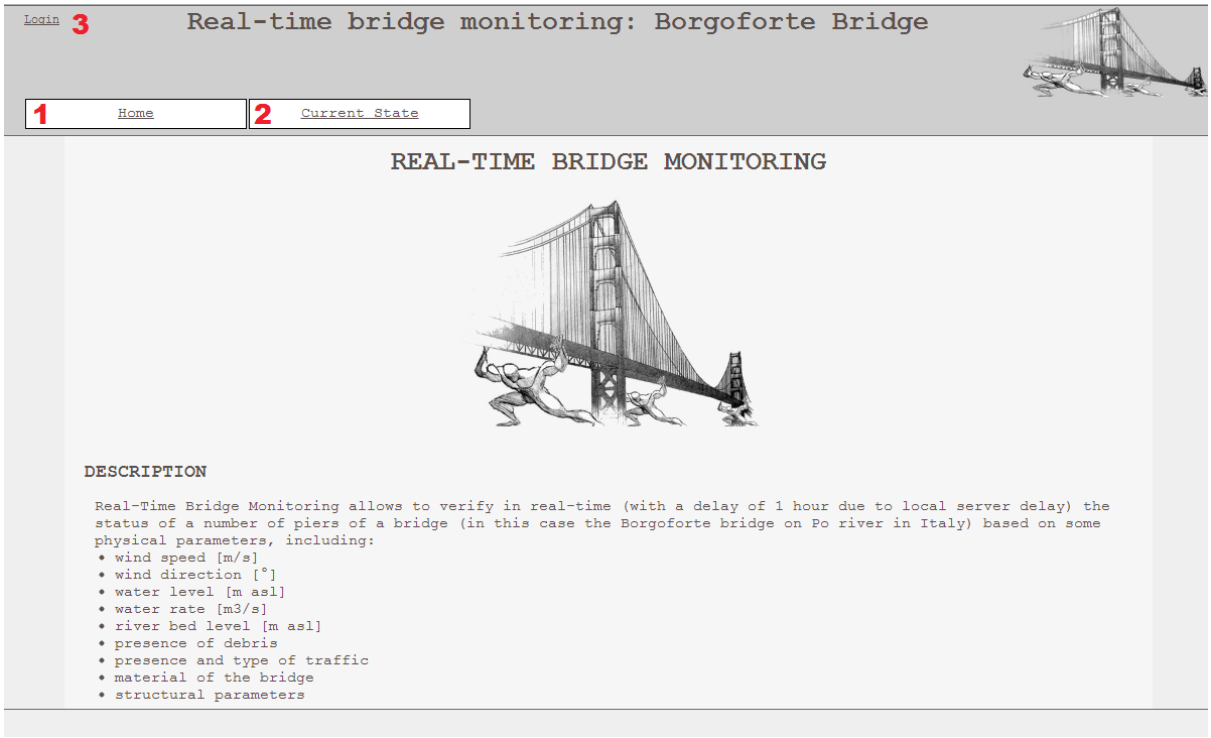
2.3 Registration and Admin Credentials

3. Usage of the product

3.1 External User

3.1.1 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 (3.1.2)

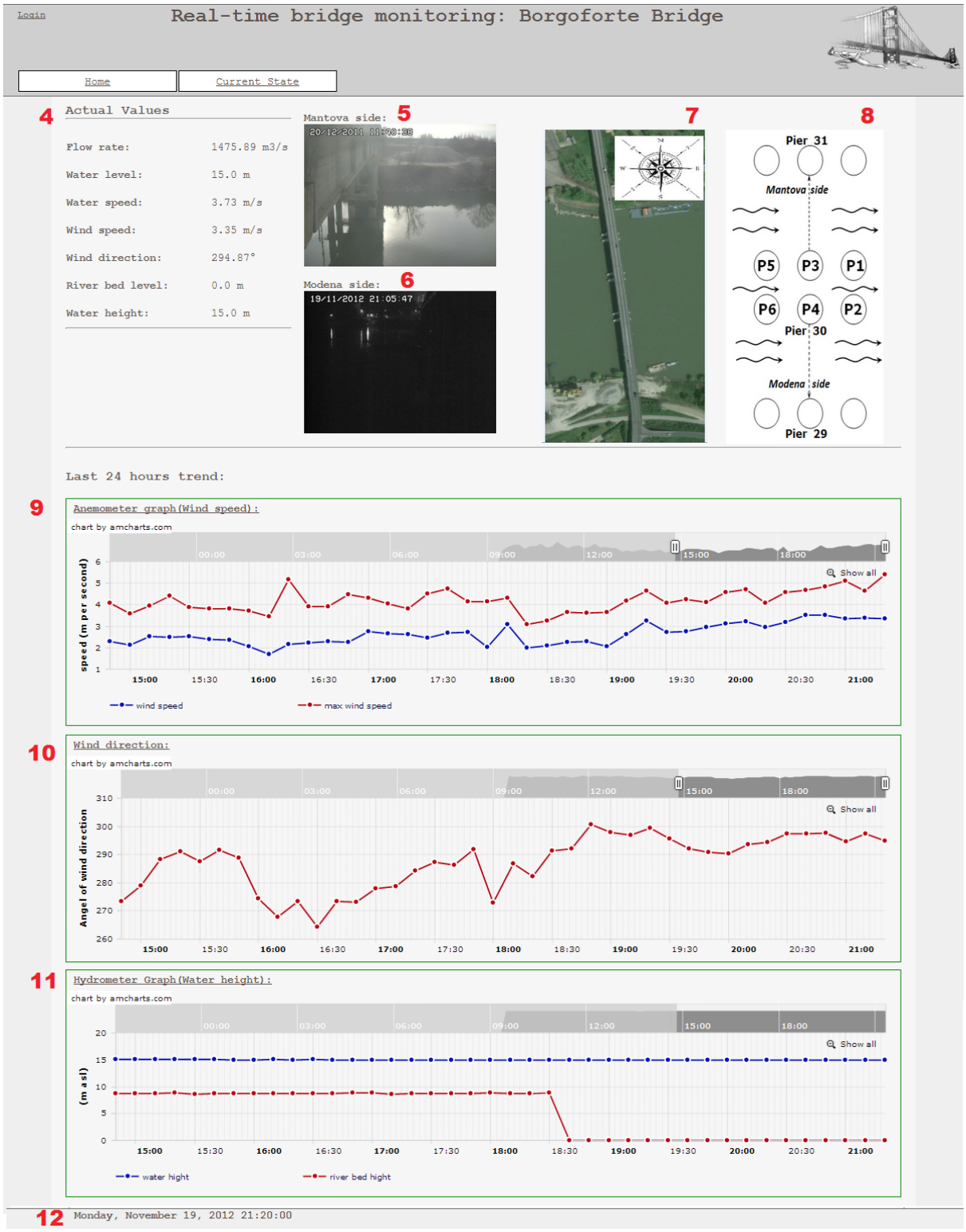
   This action will take you to the “Current State” page, where you can view the current status of the bridge

3. Log-in (3.1.3)

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

3.1.2. View current bridge status

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

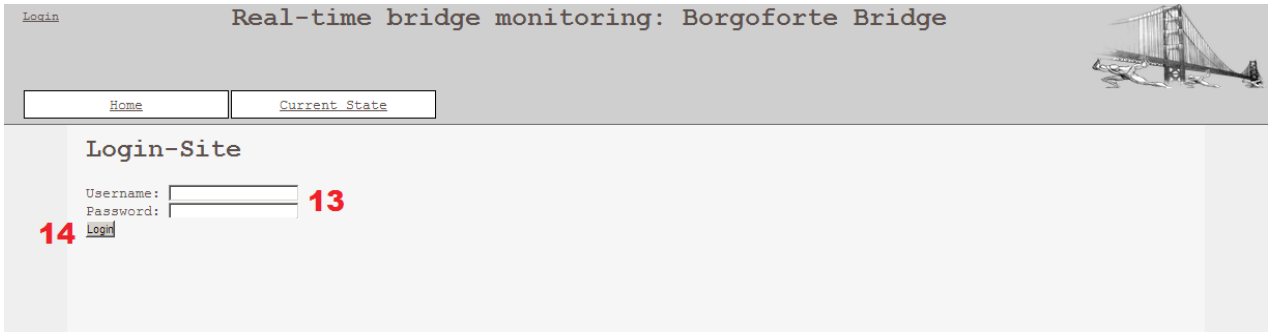


The elements on this page represent the following:

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

3.1.3. 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

3.2 Operator

3.3 Engineer

3.3.1. Home page

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

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

1. Home

   This action will leave you on the home page

2. Current State (3.3.2)

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

3. History diagrams (3.3.3)

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

4. MN Domain (3.3.4)

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

5. Parameters (3.3.5)

   This action will take you to the parameters page, which contains a list of all the parameters that can be changed by the engineer

6. Statistics (3.3.6)

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

7. Log-out (3.3.7)

   This action will log you out instantly

3.3.2. View current bridge status

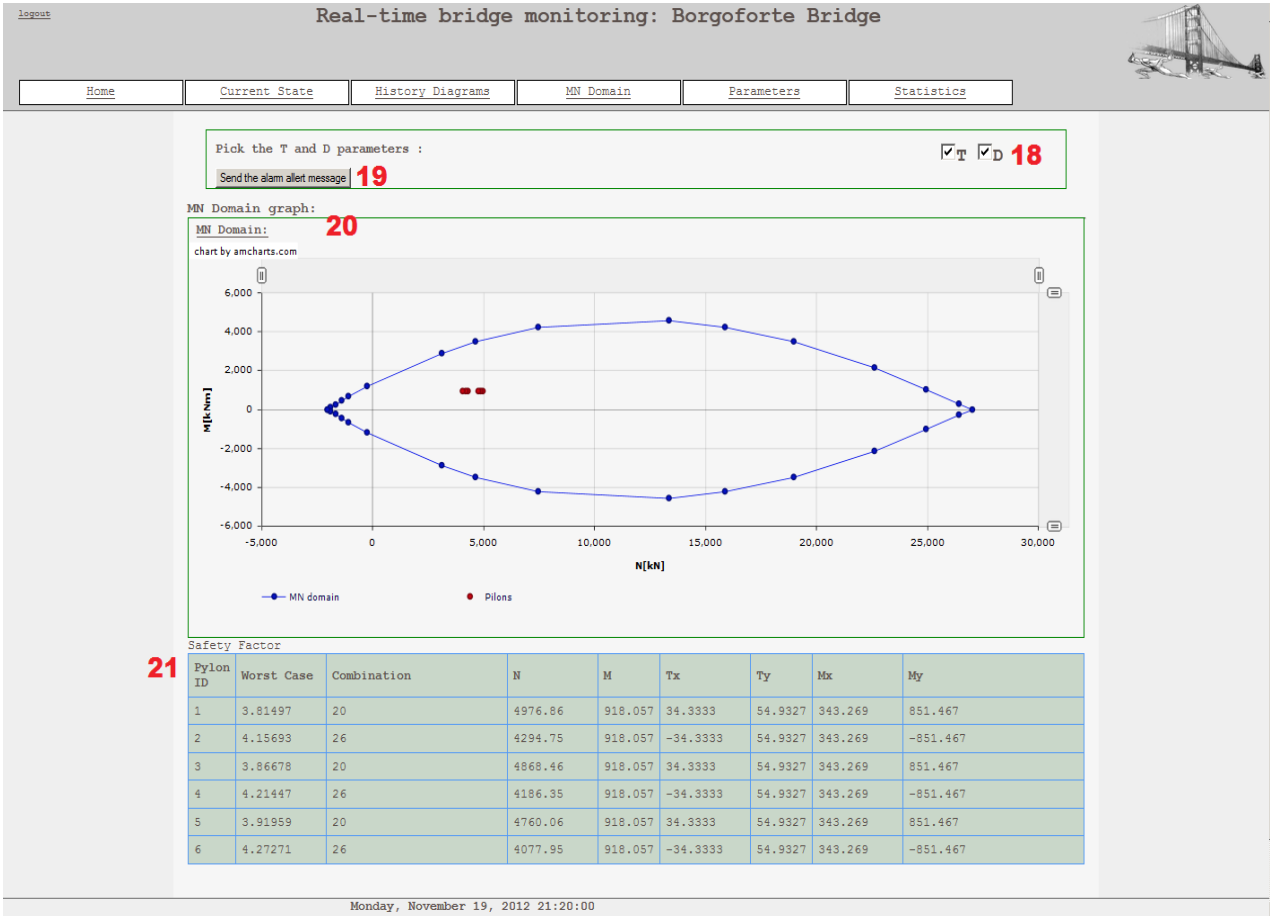
The “Current State” page is the same for both the engineer and external user, and is explained in section 3.1., External User.

3.3.3. View history diagrams

TODO

3.3.4. View MN domain

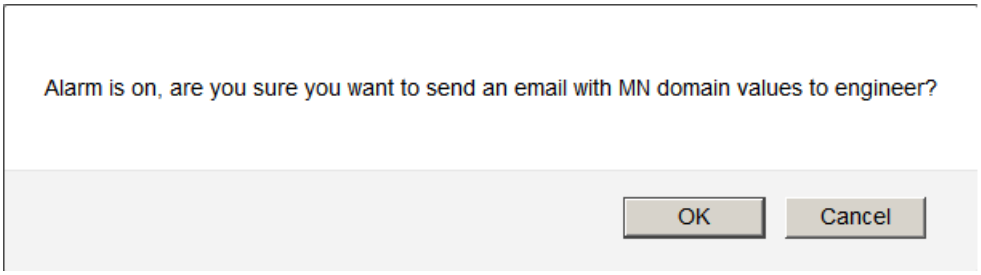
The following picture presents the "MN Domain" page, that is presented when clicking on the MN domain tab (4).



Pylon ID	Worst Case	Combination	N	M	Tx	Ty	Mx	My
1	3.81497	20	4976.86	918.057	34.3333	54.9327	343.269	851.467
2	4.15693	26	4294.75	918.057	-34.3333	54.9327	343.269	-851.467
3	3.86678	20	4868.46	918.057	34.3333	54.9327	343.269	851.467
4	4.21447	26	4186.35	918.057	-34.3333	54.9327	343.269	-851.467
5	3.91959	20	4760.06	918.057	34.3333	54.9327	343.269	851.467
6	4.27271	26	4077.95	918.057	-34.3333	54.9327	343.269	-851.467

The engineer 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 engineer to send an alert to the responsible person. The pop-up window is presented below. In order to send the alarm, the engineer 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 engineer 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

3.3.5. View and update parameters

TODO

3.3.6. View statistics

When the engineer 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.

3.3.7 Log out

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

3.4 Administrator