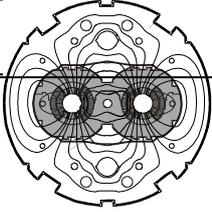


CERN CH-1211 Geneva 23 Switzerland

FNAL, Batavia, IL, USA



LHC Project Document No.

**LHC-AB-CO-xxxx rev 0.1**

CERN Div./Group or Supplier/Contractor Document No.

**AB-CO**

EDMS Document No.

**YYYYYY**

Date: 2007-05-22

## Functional Requirements

# THE WEB FIXED DISPLAYS REQUIREMENTS

### *Abstract*

The required elements for the Web Fixed Display are listed, described and explained here.

#### *Prepared by :*

T. Bolshakov, Fermilab  
J. Wozniak, AB/CO/OP

#### *Checked by :*

D. McGinnis, Fermilab  
J. Patrick, Fermilab  
E. McCrory, Fermilab  
S. Gysin, Fermilab

#### *Approved by:*

H. Schmickler, AB/CO  
[E. Hatziangeli, SL/CO](#)

### *History of Changes*

<i>Rev. No.</i>	<i>Date</i>	<i>Pages</i>	<i>Description of Changes</i>
0.1	22-May-2007	7	First draft
0.2	23-May-2007	7	After comments from J. Wozniak
0.3	29-May-2007	6	After extraction of Architecture into separate document.

*Table of Contents*

ABOUT THIS DOCUMENT.....4

**1. INTRODUCTION AND OVERVIEW.....4**

OBJECTIVES.....4

ROLES AND RESPONSIBILITIES.....4

FUNCTIONAL AND IMPLEMENTATION REQUIREMENTS.....5

REFERENCES.....6

## ABOUT THIS DOCUMENT

It is anticipated that the Web Fixed Displays (**WFD**) will be a web-based Java application used by AB/OP and others in the CERN Control Centre and elsewhere during the commissioning and the operation of the LHC at CERN.

First, we present an the objectives, the roles and the responsibilities. Then we present the formal requirements. Proposed Architecture is discussed in the separate document.

The priorities of the requirements are listed as either “Critical”, “Expected.” The former means that the application absolutely must have this feature. The latter means that the application should have it, but it will not be necessary in the initial version(s) of the application.

In the requirements, we use the abbreviation **WFD** for “Web Fixed Display”

## 1. INTRODUCTION AND OVERVIEW

### OBJECTIVES

CERN operators will face a need for remote monitoring. “Fixed Display” applications are routinely used for monitoring in CERN and in many of other HEP laboratories. These applications read and visually represent the current state of hardware devices.

It is anticipated, that those Fixed Displays are written in Java and comply with some simple set of restrictions.

The goal of Web Fixed Displays is to represent those applications on a web page using AJAX technology.

### ROLES AND RESPONSIBILITIES

There several intersecting roles in the usage of **WFD**:

1. **General public** – anybody in the World. Should be able to watch the Fixed Displays as Web pages (with some restrictions – the number of possible applications and the traffic may be limited).
2. **Operator** – suppose to have advantages in terms of traffic in viewing **WFD**.
3. **Fixed Displays Developer(s)** – suppose to develop new Fixed Displays on Java.
4. **WFD administrator** – manages WFD index pages through changing WFD property files.

## FUNCTIONAL AND IMPLEMENTATION REQUIREMENTS

The functionality and the scope, performance and concurrency of the WFD are discussed and presented in this section. Implementation requirements are restrictions on software practices and methodologies used in WFD. Because of the relatively small size of WFD we decided to list implementation and functional requirements in one list. Despite in general such a mix of functional and implementation is not desired for small project it may be more clear and concise.

**Server side** of WFD should be able to:

- |  |                                |          |
|--|--------------------------------|----------|
| 1.1 To <b>start</b> several Java <b>Fixed Display (FD)</b> applications on the server side.  | Functional                     | Critical |
| 1.2 The <b>class loaders</b> for different FD applications must be <b>separate</b> from each other.  | Implementation                 | Critical |
| 1.3 <b>Logging</b> messages should use log4j (Jakarta commons logging.)  | Implementation                 | Expected |
| 1.4 Keep and regularly update current SVG representation of FD.  | Functional                     | Critical |
| 1.5 The configuration of any given WFD will be fixed. Several configurations for different users should be created. Particular configuration will be represented as "properties" file. One servlet contained should use one "properties" file. | Functional /<br>Implementation | Critical |
| 1.6 WFD should be able to serve up to 16 applications on one server.   | Performance                    | Critical |

**Client side** of WFD should be able to:

- |   |   |          |
|---|---|----------|
| 2.1 Reproduce graphically the Fixed Display(s) started at server in the <b>standard Web Browser</b> . It should be regularly updated.   | Functional                              | Critical |
| 2.2 <b>Index</b> page should represent <b>current state</b> of started FD and be updatable as well as individual WFD pages.   | Implementation                          | Expected |
| 2.3 Index page should have a form of <b>grid</b> and it should utilize the screen size effectively. Size of grid is defined on server size in "properties" as mentioned in 1.5  | Functional /<br>Implementation          | Expected |
| 2.4 Small representations of separate Fixed Displays in the index grid should be <b>readable</b> and should be as big as possible. Monitoring the grid index page will be the <b>main</b> mode of monitoring, big individual pages will be opened rarely. | Functional,<br><b>Operators request</b> | Critical |
| 2.5 It should be able to start several individual WFD pages on the client site <b>simultaneously</b> .  | Implementation                          | Expected |
| 2.6 Client side script should use <b>differences</b> for updating the representation.   | 2.7 Performance                         | Expected |

Additional requirements, that affects **both client and server** side:

- |  |                |          |
|--|----------------|----------|
| 3.1 Static images used in Fixed Displays should be supported in WFD. | 2.8 Functional | Critical |
|--|----------------|----------|

## REFERENCES

1. "Synoptic display – a client–server system for Graphical Data Representation", proceedings of ICALEPCS'03, <http://synoptic.fnal.gov>
2. "Architecture of Web Fixed Displays"