Renovating and Upgrading the Web2cToolkit Suite: A Status Report

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Introduction

The Web2cToolkit is a **collection of Web services**, i.e. servlet applications and the corresponding Web browser applications, including

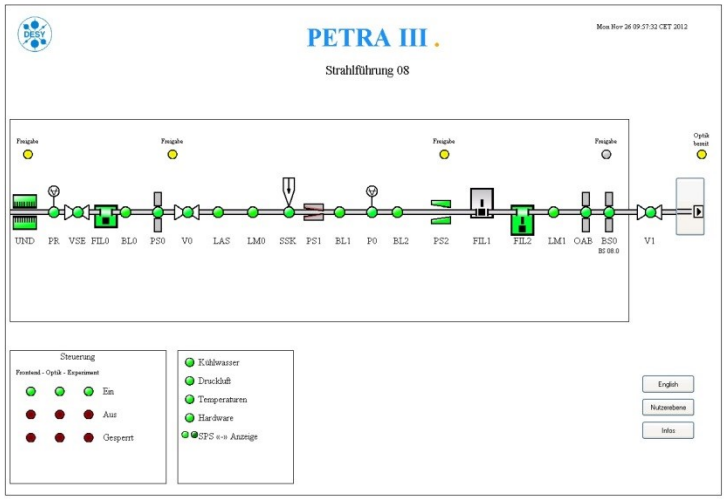
- **Web2cViewer:** Interactive synoptic live display to visualize and control accelerator or beam line equipment
- **Web2cViewerWizard:** Graphical WYSIWYG-editor to generate and configure synoptic displays **NEW**
- **Web2cArchiveViewer:** Web form to request data from a control system archive storage and to display the retrieved data as a chart or table
- **Web2cArchiveViewerWizard:** Graphical WYSIWYG-editor to generate and configure archive viewer displays **NEW**

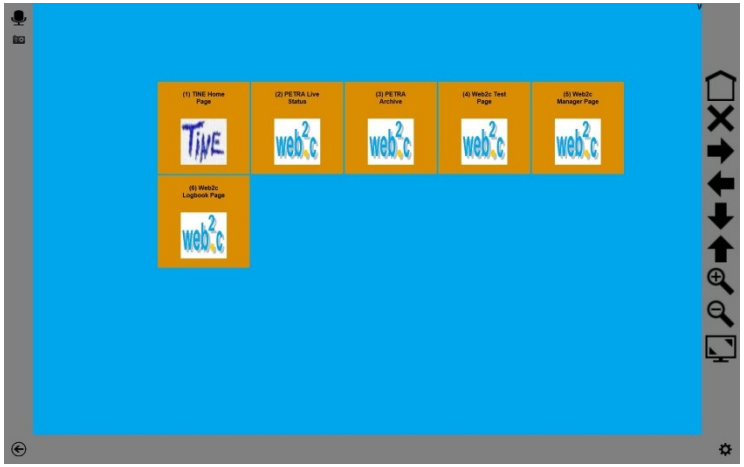
Introduction (cont'd)

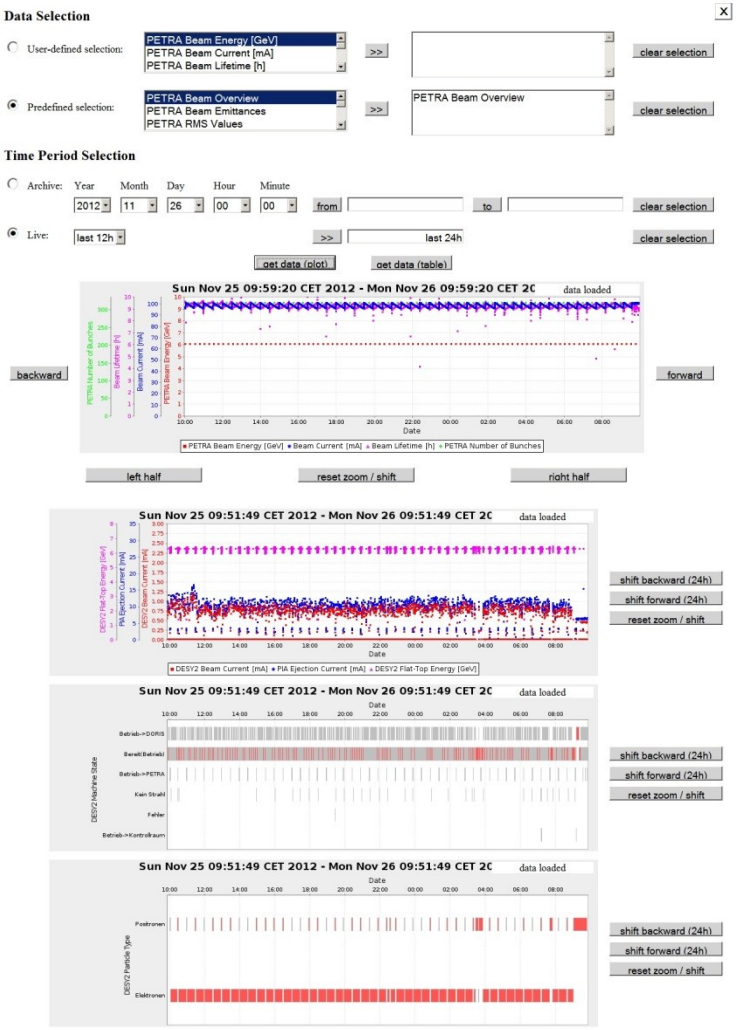
The Web2cToolkitis a collection of Web services, i.e. servlet applications and the corresponding Web browser applications, including

- **Web2cGateway:** Application programmer interface (HTTP-gateway) to all implemented control system interfaces
- **Web2cMessenger:** Interface to E-Mail, SMS and Twitter
- **Web2cLogbook:** Electronic logbook with auto-reporting capability
- **Web2cManager:** Administrator's interface to configure and manage the toolkit
- **Web2cToGo:** Interactive display especially designed for mobile devices embedding instances of all kinds of Web2cToolkit services

Sample Screenshots





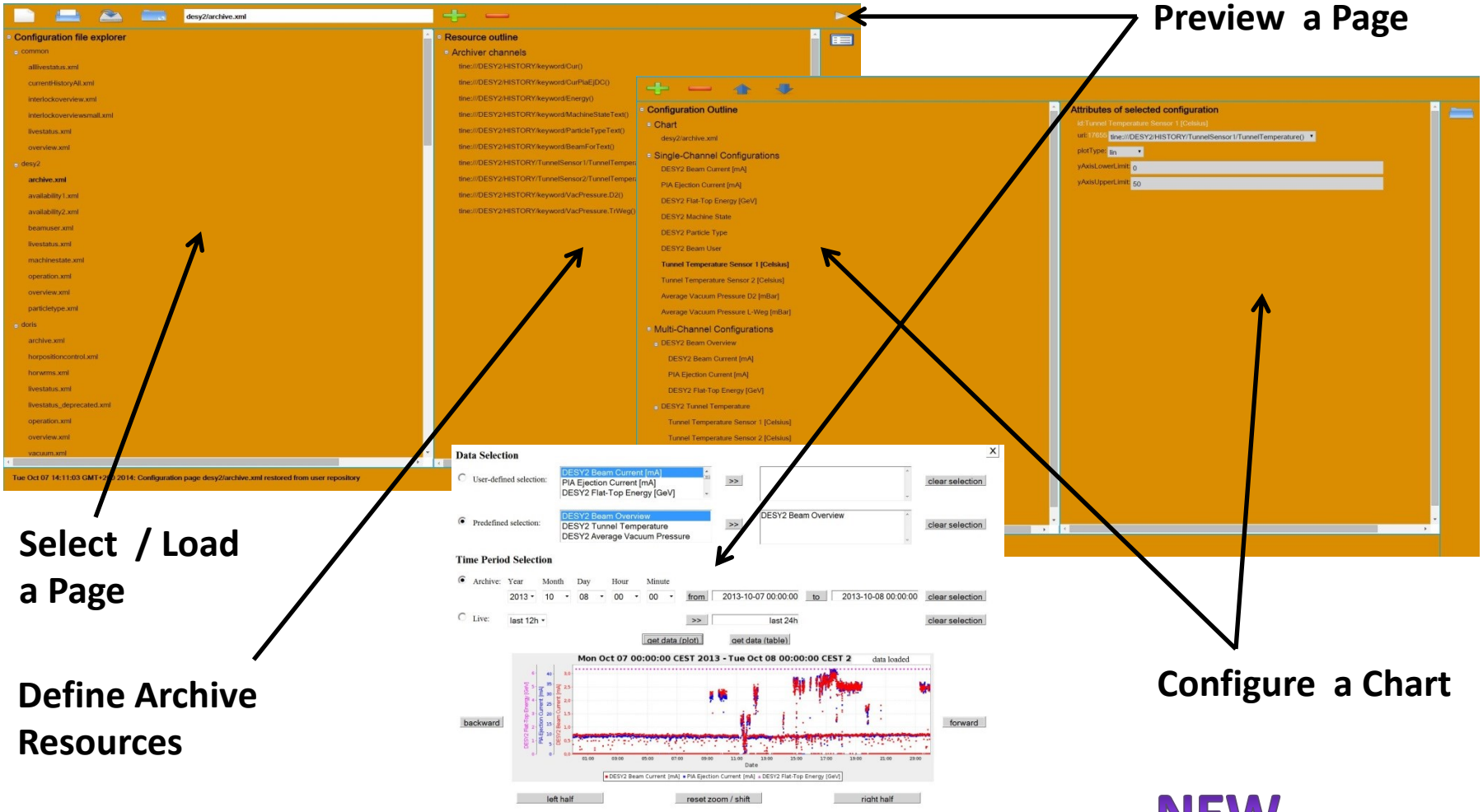


Key Features

- **Web application:**
  - Client: Web browser, HTML5, CSS, AJAX, platform independent
  - Server: Web server, servlets, Java
  - Client-Server communication: HTTP / HTTPS, WebSockets **NEW**
  - Single-Sign-On user authentication
  - Role-based user authorization
- **Interfaces to major accelerator and beam line control systems:**
  - TINE
  - DOOCS (EPICS, TANGO)
- **Multi-Modal Human-Machine Interface:**
  - Mouse
  - Touch
  - Speech
  - 3D-Gestures **NEW**

Web2cViewerWizard

Web2cArchiveViewerWizard



Improved and Novel Features

- **Secure client-server communication**:
  - HTTPS (SSL/TSL)
  - Option: Enforced

NEW

- **Multi-Language support**:
  - Unicode compliant characters (UTF-8 encoded) fully supported

NEW

- **User repository**:
  - user files not overwritten during application deployment,
  - version history

NEW

- **User-Defined Widget Extension**:
  - API revised
- **User-Defined Interface Plugs**:
  - Control system API revised
  - Archive system API implemented
  - Video source API implemented

NEW

NEW

Ongoing Developments

- **Web2cToGo:**
  - Supports user interaction by:
    - Mouse actions
    - Single- or multi-finger touch gestures
    - Spoken commands
    - Finger and hand 3D-gestures
  - Still experimental and incomplete
    - Gaze recognition?

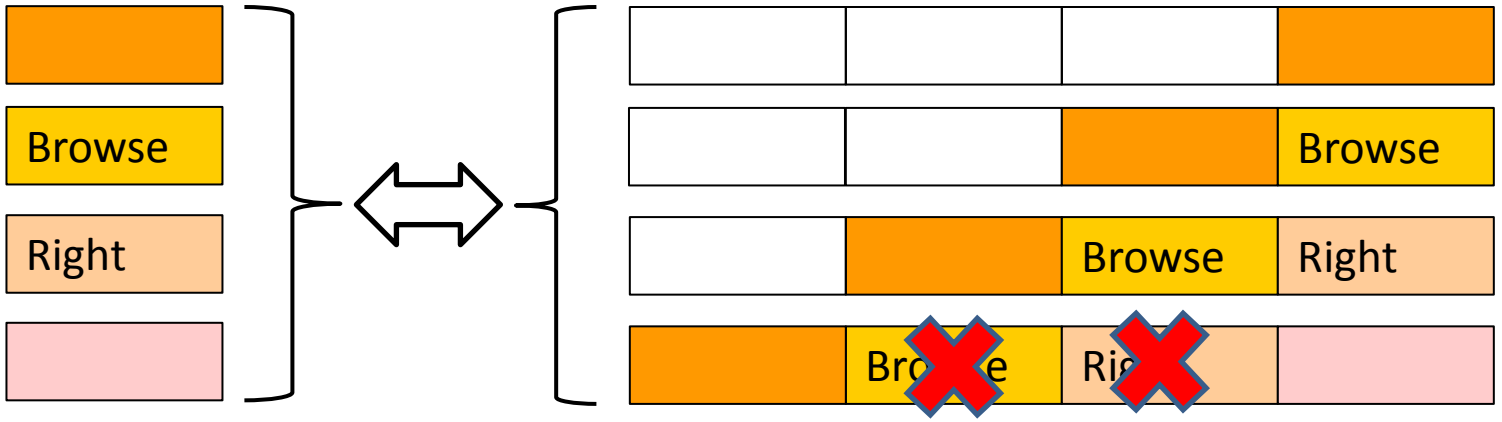
Speech Recognition

- Two stage procedure:
  - Client-side periodic audio recording
  - Server-side speech recognition
  - WebSocket-based client-server communication

→ **Continuous recognition, short dead time to avoid double recognition** NEW

→ **Almost immediate response**

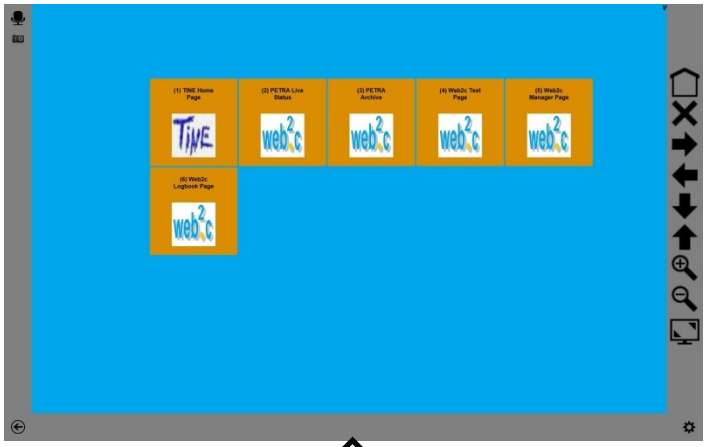
Web2cToGo Client: HTML5 **Web2cToGo Servlet: Sphinx**



3D-Gesture Recognition

- **LEAP** motion controller
  - Standard gestures: swipe, circle, key-tap, screen-tap, grabbing, fist
  - Extensive API allows for complex user-defined gestures
  - One stage process: solely local client-side gesture recognition

→ **Immediate response**



LEAP motion controller software with local Web server

USB

WebSocket

NEW

Further Reading

http://web2cToolkit.desy.de