REACT AUTOMATION STUDIO: MODERN SCIENTIFIC CONTROL WITH THE WEB

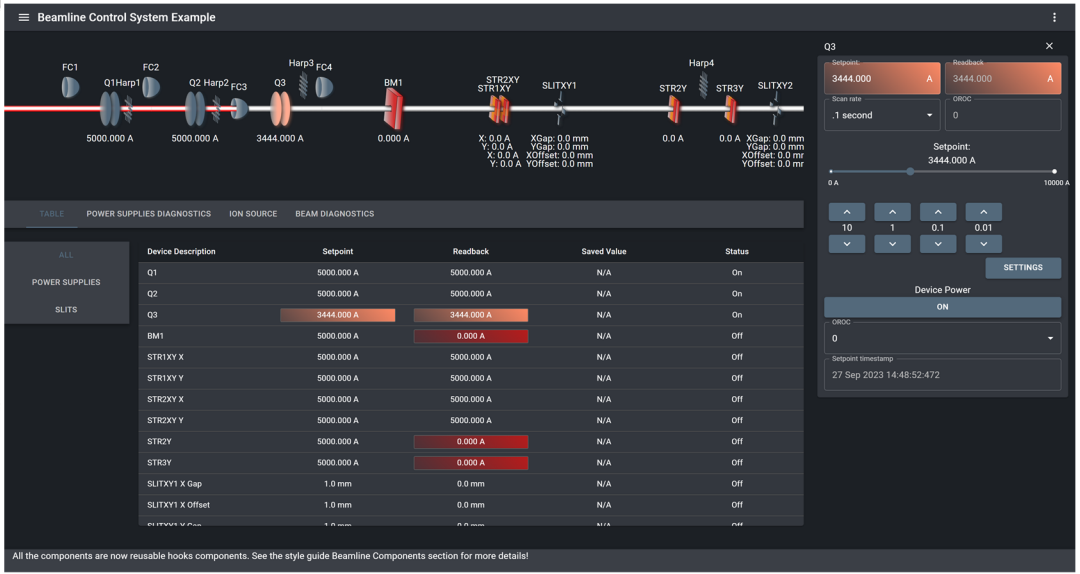
Dr William Duckitt

Overview

- What is React Automation Studio?
- System Architecture
- Historical milestones
- Demos
- Community Involvement

What is React Automation Studio?

- Progressive web application framework
- Enables the control of large scientific equipment through EPICS from any smart device or web browser connected to a network



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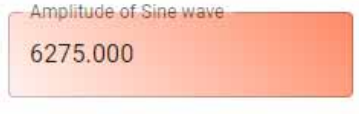
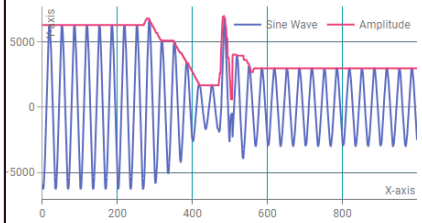
```
<ThumbWheel
  pv='$(device)'
  macros={{
    $(device)':'testIOC:amplitude'
   }}
  prec_integer={3}
  prec_decimal={1}
/>
```




```
<TextInput
  pv='$(device):amplitude'
  macros={{'$(device)':'testIOC'}}
  usePvLabel={true}
  prec={3}
  alarmSensitive={true}
/>
```




```
<GraphY
  pvs={['testIOC:test4',
        'testIOC:test5'] }
  legend={['Sine Wave',
       'Amplitude']}
/>
```

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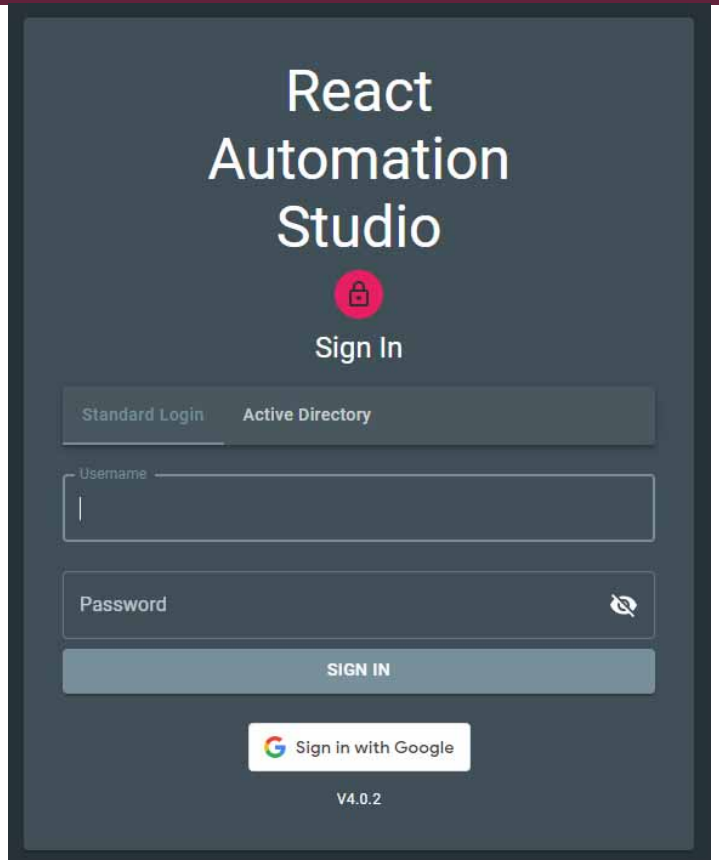

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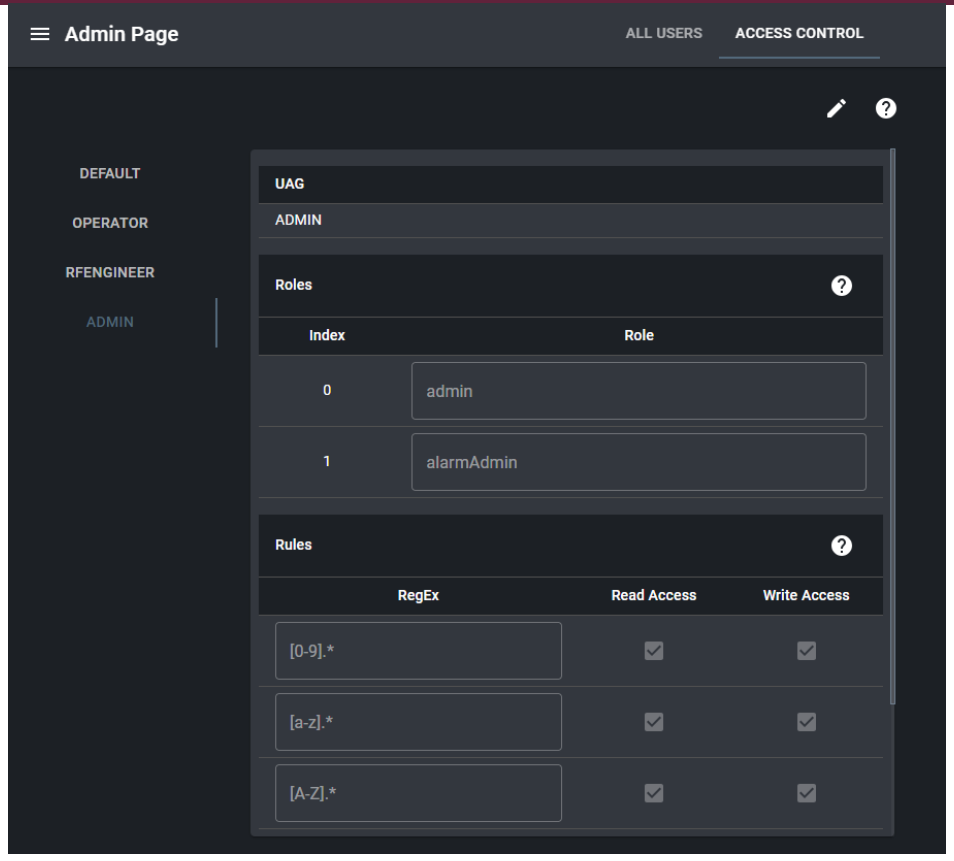

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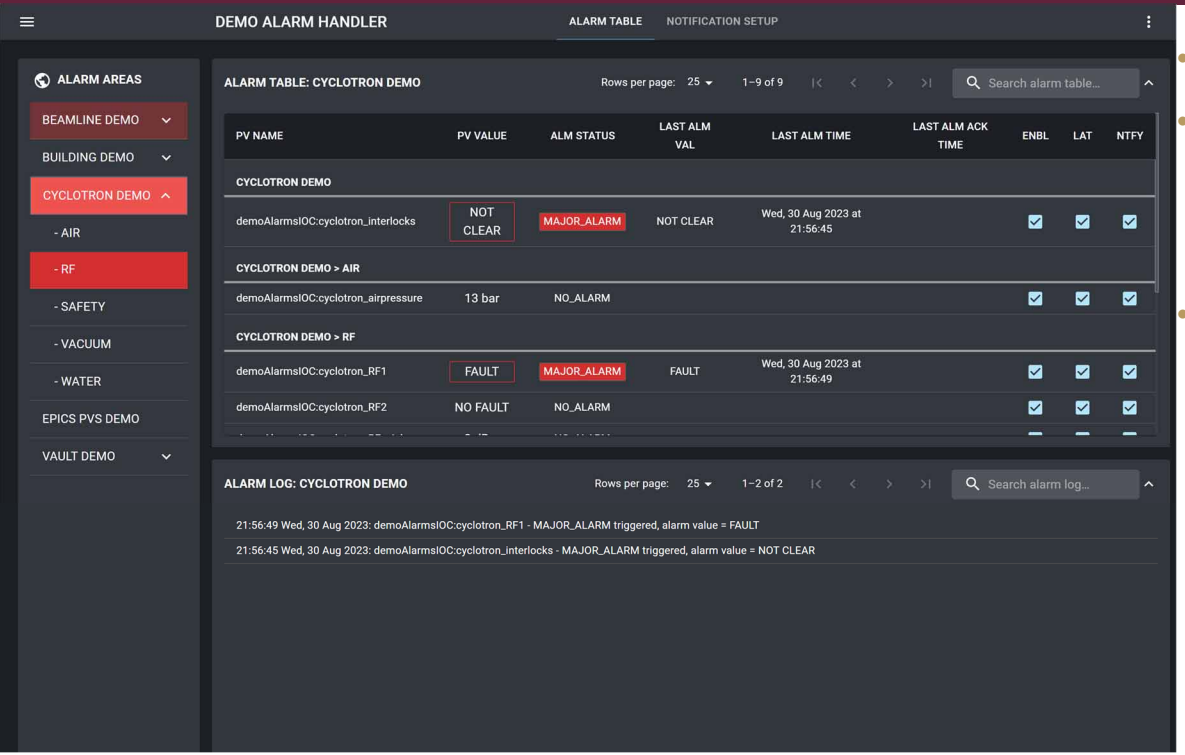

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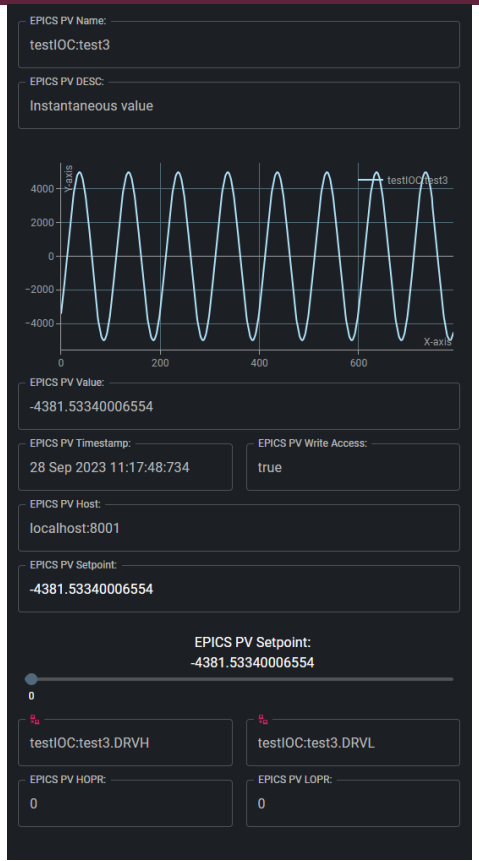

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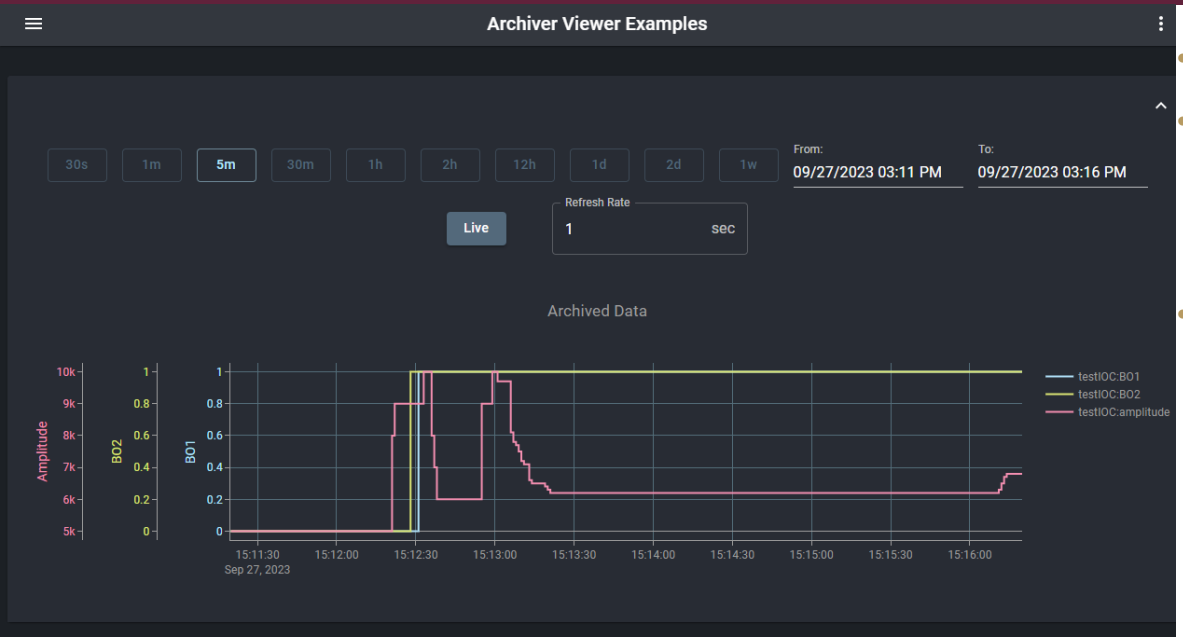

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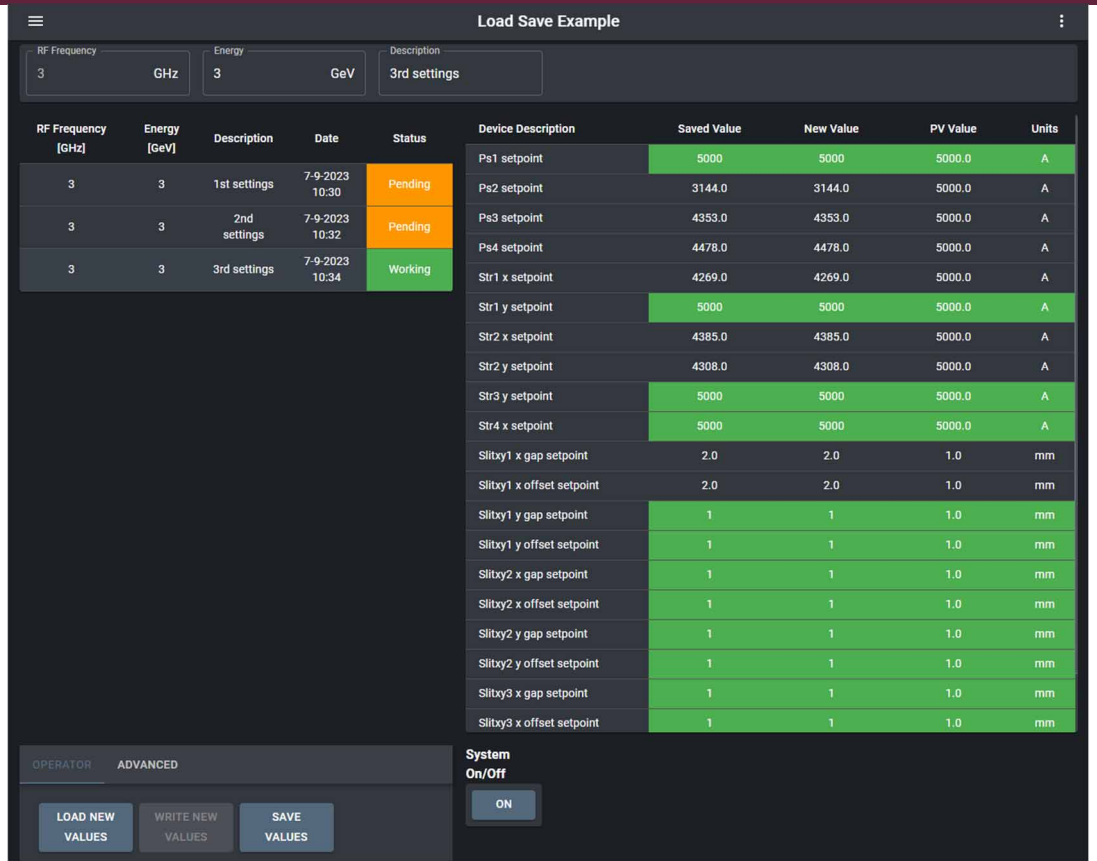

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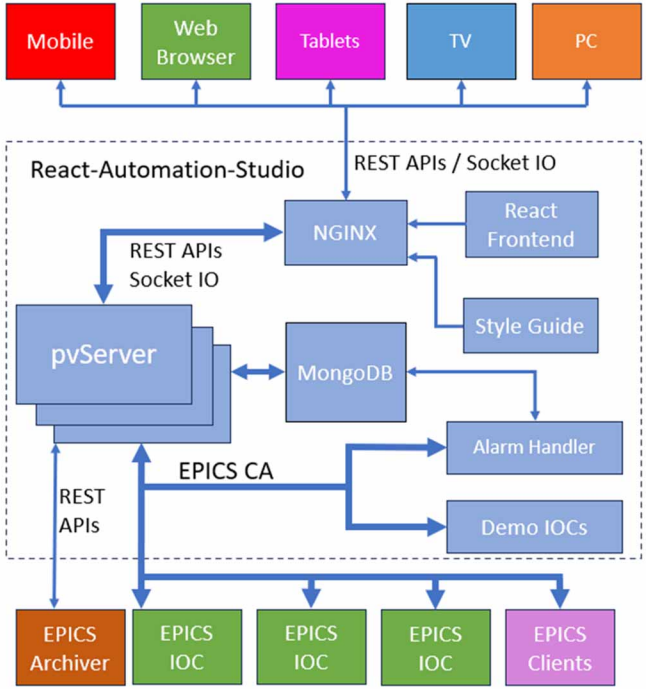
  - Themeable

React Automation Studio = Real-time Control With The Web

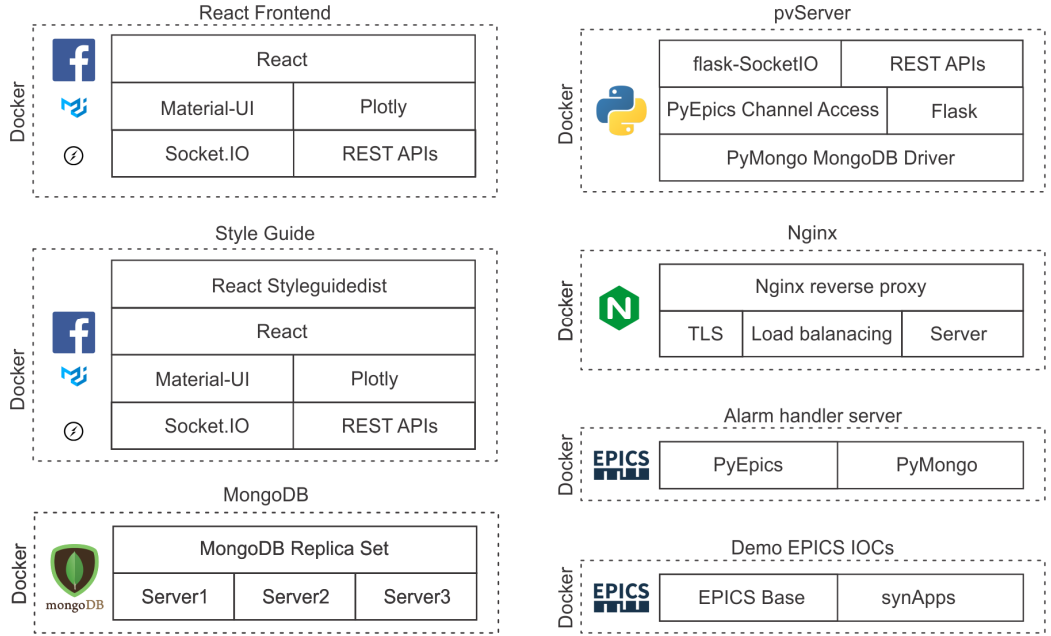
System Architecture

Block Diagram



Orchestrated with Docker Compose

Microservices

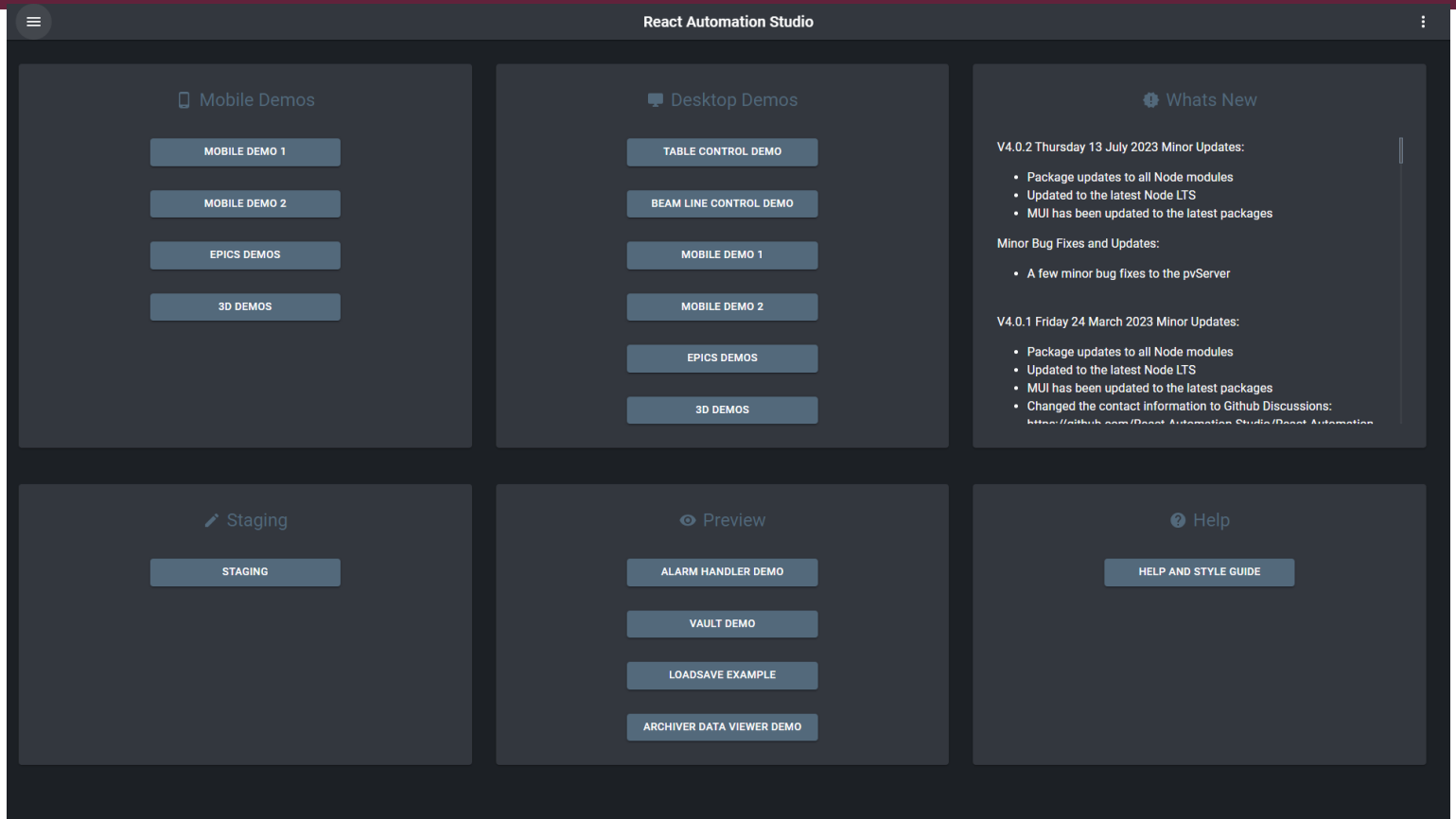


Provided as a Git mono-repo

Milestones

- V1.00 October 2019 - Initial Public Release
- V2.0.0 August 2020 - Moved to React Hooks, centralised all the Widgets, separated all the App Logic, Preview of the Alarm Handler, Load/Save
- V2.1.0 October 2020 - Added Epics Archiver Viewer component
- V2.2.0 January 2021 - New Array Container, New Light Panel
- V3.0.0 May 2021 – MongoDB, Web based administration, Nginx, Alarm Handler supports Signal notifications, changed the Graphing Library to Plotly, External Authentication via Active Directory or Google Authentication
- V4.0.0 August 2022 Updated to the latest React, Material UI and updates to pvServer
- Current V4.0.2 July 2023 Minor updates
- Future V5.0.0 In testing

Demos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EPICS DEMOS
3D DEMOS
Desktop Demos
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Package updates to all Node modules
Updated to the latest Node LTS
MUI has been updated to the latest packages
Minor Bug Fixes and Updates:
A few minor bug fixes to the pvServer
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LOADSAVE EXAMPLE
ARCHIVER DATA VIEWER DEMO
Help
HELP AND STYLE GUIDE

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- MOBILE DEMO 2
- EPICS DEMOS
- 3D DEMOS

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- LOADSAVE EXAMPLE
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Help

- HELP AND STYLE GUIDE

Acknowledgements

- Justin Abraham
- Giovanni Savarese
- Davide Macarto
- Ivo Hannak

- Please get involved:

  https://github.com/React-Automation-Studio/React-Automation-Studio

- Or contact:
  - William Duckitt wdduckitt@sun.ac.za
  - Justin Abraham jk.abraham@ilabs.nrf.ac.za

Thank you

- Any questions?