ZDMP Blog

ZDMP Portal – A landing page and seamless navigation between ZDMP Applications

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Some questions for you

- Do you need a coherent access and authorisation system to all your different applications?
- Can you seamlessly navigate between multiple applications?
- How do you secure your connections to numerous factory systems?

Overview of the ZDMP Portal

The ZDMP Portal allows a user to log in and navigate to sections of ZDMP that they are interested in. Authentication and authorisation are provided by Keycloak, a well-established, open-source solution that securely manages the details of users and their permissions within ZDMP.

Portal Architecture

The ZDMP Portal consists of three sub-components: A Node back-end, an Angular front-end, and a separate "dash button", which is a web component. It is all containerised with Docker to allow for easy integration. The component links heavily with the Secure Authentication and Authorisation Component.

The back-end is a Node application providing APIs that hold the business logic of the Portal, including creating organisations in Keycloak.

The front-end mainly consists of a lightweight Angular web-app. Angular [1] is a web framework used by 26.5% of professional software developers (that responded to Stack Overflow's 2020 survey) [2]. It provides basic UI elements such as forms and the landing page and integrates easily with other technologies.

The Portal Dash Button is visible on all ZDMP pages. This dash button is a web component which gives easier integration with the front-end user interfaces of the other applications in ZDMP.

Web Components

The term "web components" covers several related features of modern web development, whose common purpose is allowing custom HTML elements and templates – and any CSS styling and JavaScript logic associated with them – to be embedded across many different webpages yet as it is encapsulated it does not conflict with any other elements on the page.[3][4]

This makes web components perfect for the Portal Dash Button: Developers can build whatever dashboards and user interfaces they want, and the Portal Dash Button will sit above and not interfere.

## Integration with the Secure Authentication and Authorisation Component

Keycloak [5] provides a convenient UI that facilitates signing up, logging in, changing one's password, and logging out. This UI is customised to carry the ZDMP logo and claret-red theme, so users can be sure that they are accessing the ZDMP content they expect.

It is supported by a back-end that delivers industry-standard security, while featuring single sign-on to permit the user to log in once to access all the elements of ZDMP that they may access.

Behind the scenes, Keycloak "realms" determine what content each user is and is not permitted to view or interact with. At sign-up, the user is assigned to a realm corresponding to their organisation and roles. This ensures that users cannot accomplish anything in ZDMP that they are not authorised to.
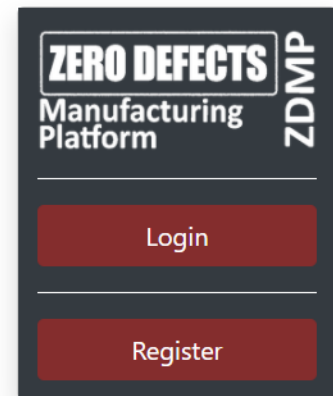
What will ZDMP achieve
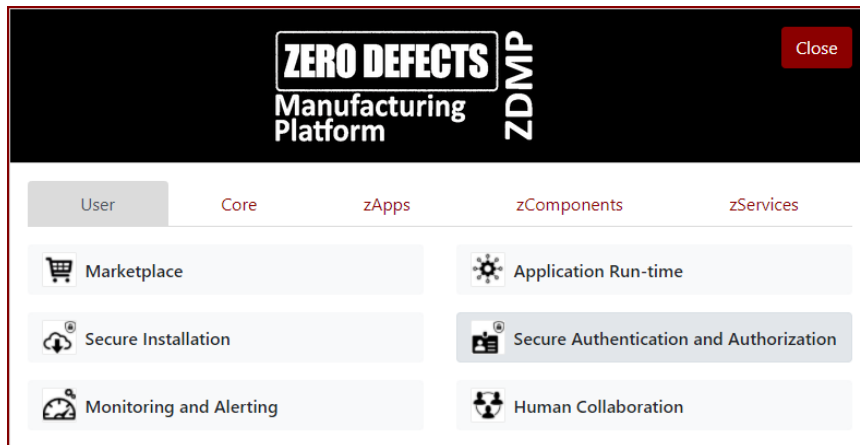
ZDMP achieves a smooth intuitive secure user interface across a number of applications by using the Portal component. The Portal component provides secure access and smooth UI integration using a web app, dash button and full integration with the Secure Authentication and Authorisation component.

When a new user signs up for an account on the web app, they are invited to fill in their individual details, as well as the details of the organisation they represent.

Once a user has signed in with their email-address and password they are secured by the Secure Authentication and Authorisation component using the Dash Button. This provides a navigation menu listing the various parts of ZDMP that can be accessed, being grouped into the five categories of "User", "Core", "zApps", "zComponents", and "zServices". Every ZDMP front-end has a header at the top of the page, containing the Portal Dash Button, which enables the user to sign in and out and allows the user to return to the navigation menu.

This gives the platform a complete and coherent feel, as well as securing single sign-on access to the wide range of ZDMP applications available.

ZDMP Links

- Architecture Component   Portal
- Work Packages   WP6 – ZDMP Platform Building
- Tasks   T6.4 Platform Integration and Federation

References/Acknowledgements

[1]   Angular's website can be found at https://angular.io/.
[2]   Stack Overflow, *'2020 Developer Survey'*. [Accessed on https://insights.stackoverflow.com/survey/2020#technology-web-frameworks]
[3]   Mozilla Developer Network, 'Web Components'. [Accessed on https://developer.mozilla.org/en-US/docs/Web/Web_Components]
[4]   Wikipedia, 'Web Components'. [Accessed on https://en.wikipedia.org/wiki/Web_Components]
[5]   Keycloak's website can be found at https://www.keycloak.org/.