



LABWORKS Exchange Portal Components Diagram

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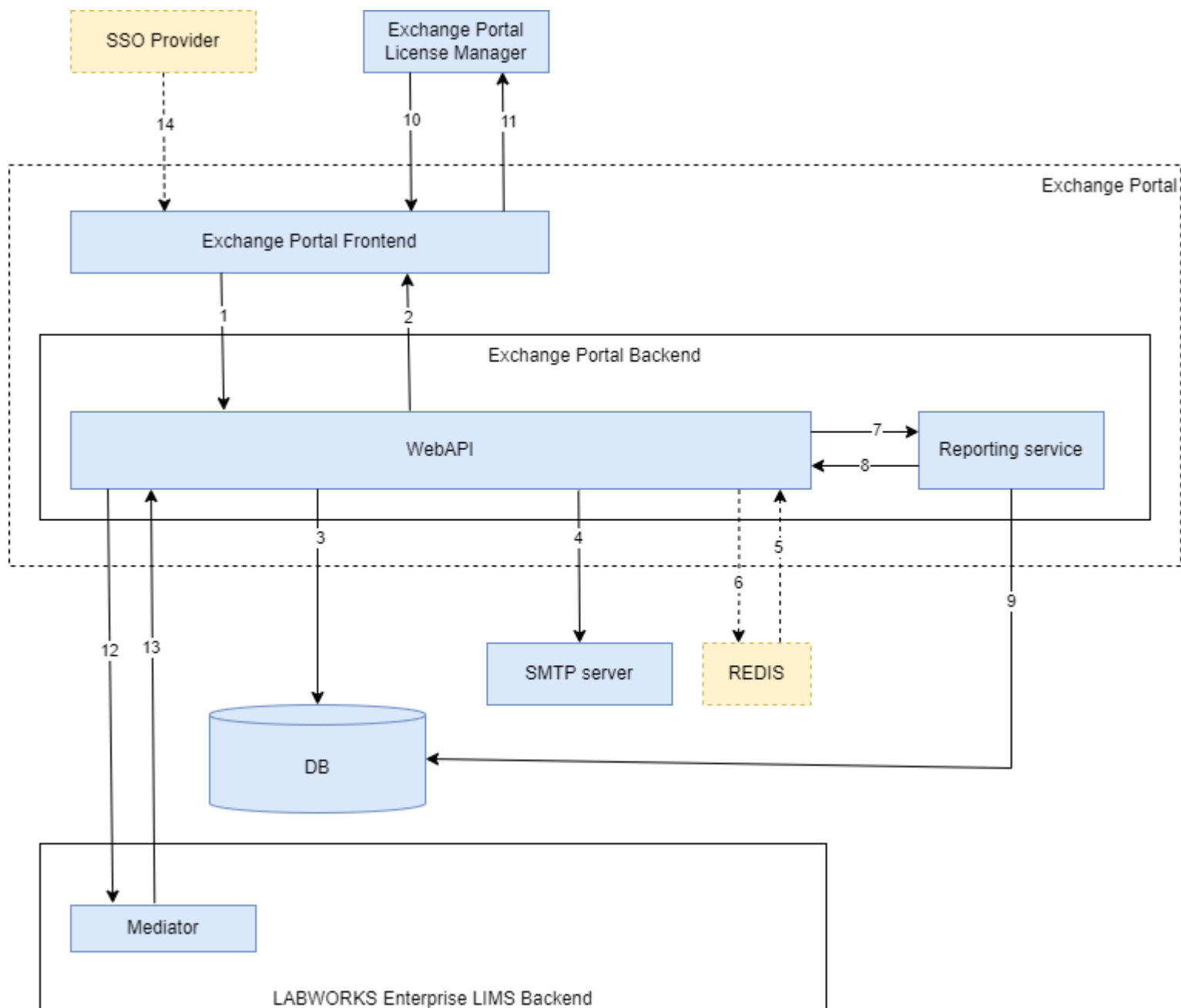
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LABWORKS Exchange Portal Components Diagram

The LABWORKS Exchange Portal Components Diagram includes the following components: Exchange Portal License Manager app, Exchange Portal frontend and backend, Reporting service (Crystal Report), SMTP server, LABWORKS Enterprise LIMS, SSO Provider (optional), Redis (optional).

The diagram below details all interaction and communication flow between these components:



Component Summary

- A. **Web API** – the main web application (website); installed in IIS. It contains a REST API, as well as libraries that implement business logic and a data access layer.
- B. **Exchange Portal Frontend** – the main web client application (website, frontend part); installed in the same IIS with Web API. It is a modern Single Page Browser Application written in Angular. It implements the web UX of the portal.
- C. **Reporting service** – web application (web site); installed in the same IIS with Web API. Prepares reports. This is an integration point with third party libraries: Crystal Reports. It creates PDF reports.
- D. **Database** – database; is common to all components, ensures their interaction, stores data.
- E. **SMTP** – external service; used to send email notifications to the portal users.
- F. **REDIS** – external service; used to cache data for the front end. This is an optional component.
- G. **Mediator** – an internal component of LABWORKS Enterprise LIMS; used for communication between LIMS and Exchange Portal.
- H. **SSO Provider** – external customer support service; used for single sign-on to the portal. This is an optional component.
- I. **Exchange Portal License Manager** – external tool; used to create trial and production licenses for the portal.

Communication Flow Legend

1. Exchange Portal Frontend authenticates and authorizes a user through WebAPI, sends requests to get data, sends commands to change data, requests for print forms, sends a license for verification and applying.
 - Protocol: HTTP
 - Port: 80/443 (configurable)
2. WebAPI sends to the Exchange Portal Frontend content of the FE application, the requested data, the results of the execution of commands, the generated print forms
 - Protocol: HTTP
 - Port: 80/443 (configurable)
3. WebAPI, Reporting Service read and write data from the DB (only MSSQL)
 - Protocols: TCP/UDP
 - Ports: 1433/1434
4. WebAPI sends a command to send emails
 - Protocol: TCP
 - Port: 25/625 (configurable)
 - Username: configurable
 - Password: configurable
5. WebAPI reads cached data from REDIS (optional, off by default)
 - Protocol: TCP
 - Port: 6379 (configurable)
6. WebAPI sends data to cache from WebAPI to REDIS (optional, disabled by default)
 - Protocol: TCP
 - Port: 6379 (configurable)
7. WebAPI sends requests to create a print form using with Crystal Report
 - Protocol: HTTP
 - Port: 80/443 (configurable)
8. Reporting service returns a print form to WebAPI (as PDF file)
 - Protocol: HTTP
 - Port: 80/443 (configurable)
9. Reporting service reads the data to create a print form (only MSSQL)
 - Protocols: TCP/UDP
 - Ports: 1433/1434
10. Preparing a license for an Exchange Portal instance (manually) using the License Manager application; sending to the portal administrator.
11. Forming a request to prepare a license for the current instance of the Exchange Portal (manually) using the user interface of the Exchange Portal - "Portal settings" screen - "License" tab; sending to support@labworks.com.
12. WebAPI sends from the portal to LIMS
 - signals about organization changes, order changes, property aliases
 1. Protocol: HTTP (WebSocket)
 2. Port: 80/443 (configurable)
 - request for a complete list of IDs: user account, location code, analyses
 1. Protocol: HTTP (WebSocket)
 2. Port: 80/443 (configurable)
 - data about organization changes, order changes, property aliases
 1. Protocol: HTTP
 2. Port: 80/443 (configurable)
13. LIMS sends data to WebAPI: user account, sample statuses, location codes, analyses, sample fields, order results, location code ID list, analyses ID list, user account ID list.
 - Protocol: HTTP
 - Port: 80/443 (configurable)
14. External SSO provider sends external user data for automatic login to the Exchange Portal (optional, disabled by default).
 - Protocol: HTTP
 - Port: 80/443 (configurable)

Installation Notes

- LABWORKS Exchange Portal installation process is described in the “LABWORKS Exchange Portal Installation Guide” document.
- LABWORKS eLIMS installation process is described in the “LABWORKS Enterprise LIMS Installation Guide” document.