Secure Forms Applications with OAM, OAAM and DB Label Security

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Keywords:

OAM, OAAM, Oracle Forms, Label Security, OID, OHS

Introduction

In this paper it is shown how Location Security can be achieved by combining Identity Management and Database Security Features for a "Defence in Depth" demonstration that incorporates Oracle Forms, single sign on, geographic location access control, strong authentication and geographic location context data access control.

We have Oracle Forms and Web Application highlighting SSO and geographic location protection at both the middleware level and at the database data level. The solution will show IP or location based protection to prevent unauthorized application access outside of a certain IP or location range using Oracle Access Manager. Strong authentication capabilities using Oracle Adaptive Access Manager.
It will also showcase on how to restrict secured information at row level, and also providing further restrictions based on geographic location identified by IP using Label Security.

Solution Architecture

Below diagram gives a view on the products installed and the integrations among them. Here, Oracle Internet Directory acts as user identity store and it is mandatory to use OID for the Oracle Forms Integration.Weblogic is the application server and OAM, OAAM installed on top of Weblogic.Webgate is installed and configured along with OHS front-ending the weblogic. We have added reverse proxy configuration in OHS for the sample web application.
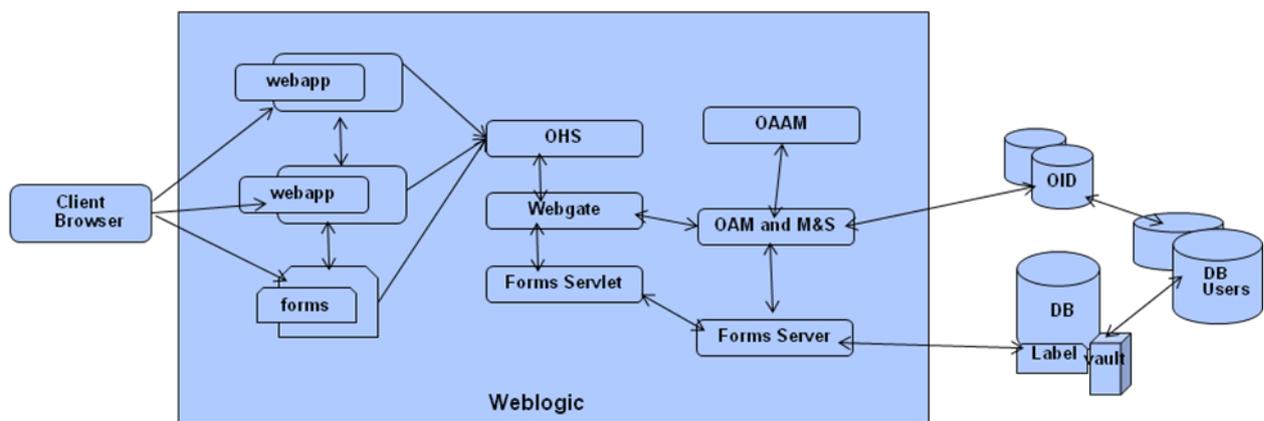

Illustration. 1: Solution Architecture

Integration

We have several integration points in the above solution. Integration with Oracle forms and Sample Web application using Oracle Access Manager for Single Sign on. Oracle Adaptive Access Manager is for Knowledge based authentication and strong authentication. We have OAM and OAAM Basic Integration. The location information (IP) is available to the Oracle Forms or Web application through the OAM response Headers. We have used JavaScript that reads headers and pass the information to the Oracle Forms Application using Oracle Forms JavaScript Library. The forms application invokes the required Label Security Procedure and passes the Location information to filter data at row level.

Demo Story

User accessing the Applications from the Allowed IP/Location

- ✓ Users accessing the Web Application
- ✓ User Access the protected page
- ✓ User challenged with OAAM Login Page
- ✓ If user accessing for first time user go through registration flow of OAAM for KBA Questions else user login with username and password.
- ✓ User access the Forms Application without credentials which shows the SSO
- ✓ User able to access all the data (row level) in the forms application

User Accessing the Application from the Allowed IP/Location but Restricted to see all the Data for that Location (Label Security)

- ✓ User Accessing the Web Application or Forms Application by URL
- ✓ User challenged by username and password by OAAM
- ✓ OAM allows the user after successful authentication
- ✓ Users Access the Forms Application
- ✓ User able to access the limited data while accessing from that Location
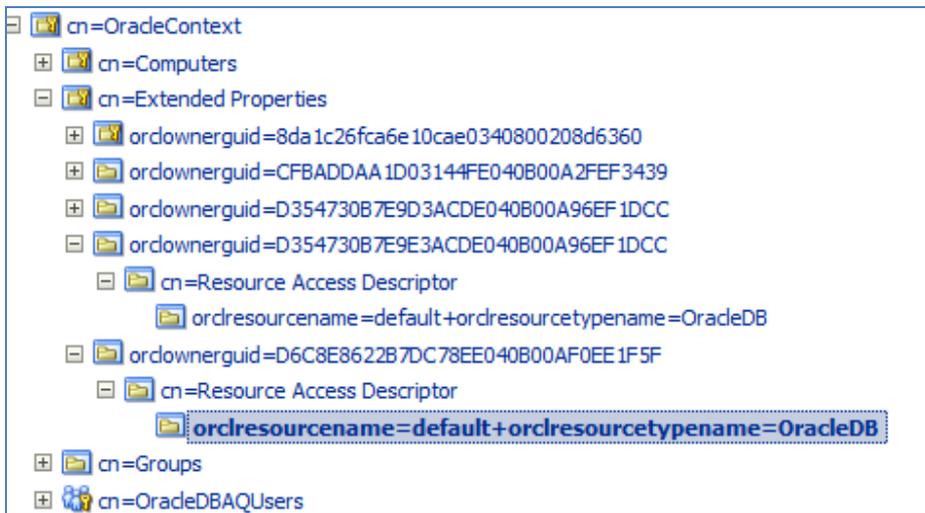
User Accessing the Application from the Blocked IP/Location

- ✓ User Accessing the Web application or Forms Application by URL
- ✓ User challenged by username and Password
- ✓ OAAM Detects user from Blocked Location/IP
- ✓ User will be shown with message with Unauthorized Access

Challenges & Configurations

Passing the IP address/Location information to Oracle Forms and then Oracle Label Security is a challange.Since sample web application and Forms application runs on different context to pass IP address from OAM to Oracle Forms,We have deployed a simple JSP which just returns the OAM response headers (IP address) and JSP is protected with OAM.We called the JSP from the Javascript to get the IP address.

Resource Access Descriptions in OID

Sample Oracle Forms Application

Strong Authentication

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