

System and Software Design Description

Web-based Hardening Guide CMS

INITIAL DRAFT

Team Alice

October 5, 2015

Contents

Introduction

Document Purpose, Context, and Intended Audience

- Purpose: Describe the design of the system and software in a manner comprehensible to the Intended Audience
- Context: The WebHDG Senior Design project
- Intended Audience: Developers and Stakeholders involved with the project

Software Purpose, Context, and Intended Audience

(software included?)

- Purpose: An easy-to-use educational resource for learning the practice of and implementing system and software hardening and security.
- Context: Increasingly connected and diverse ecosystem of systems and software
- Intended Audience: Any person trying to learn about, or implement, security for any in-practice system or software.

Definitions, Acronyms, and Abbreviations

- WebHDG : Web-based Hardening Guides CMS
- SSDD : System and Software Design Description
- UML : Unified Modeling Language
- CMS : Content Management System

Document References

Overview of Document

Document Restrictions

Constraints and Concerns

Constraints

- Team size
- Experience of team members
- Time available

Stakeholder Concerns

[daniel's concerns]

System and Software Architecture

Developer's Architectural View

Developer's View Identification

Developer's View Representation and Description

User's Architectural View

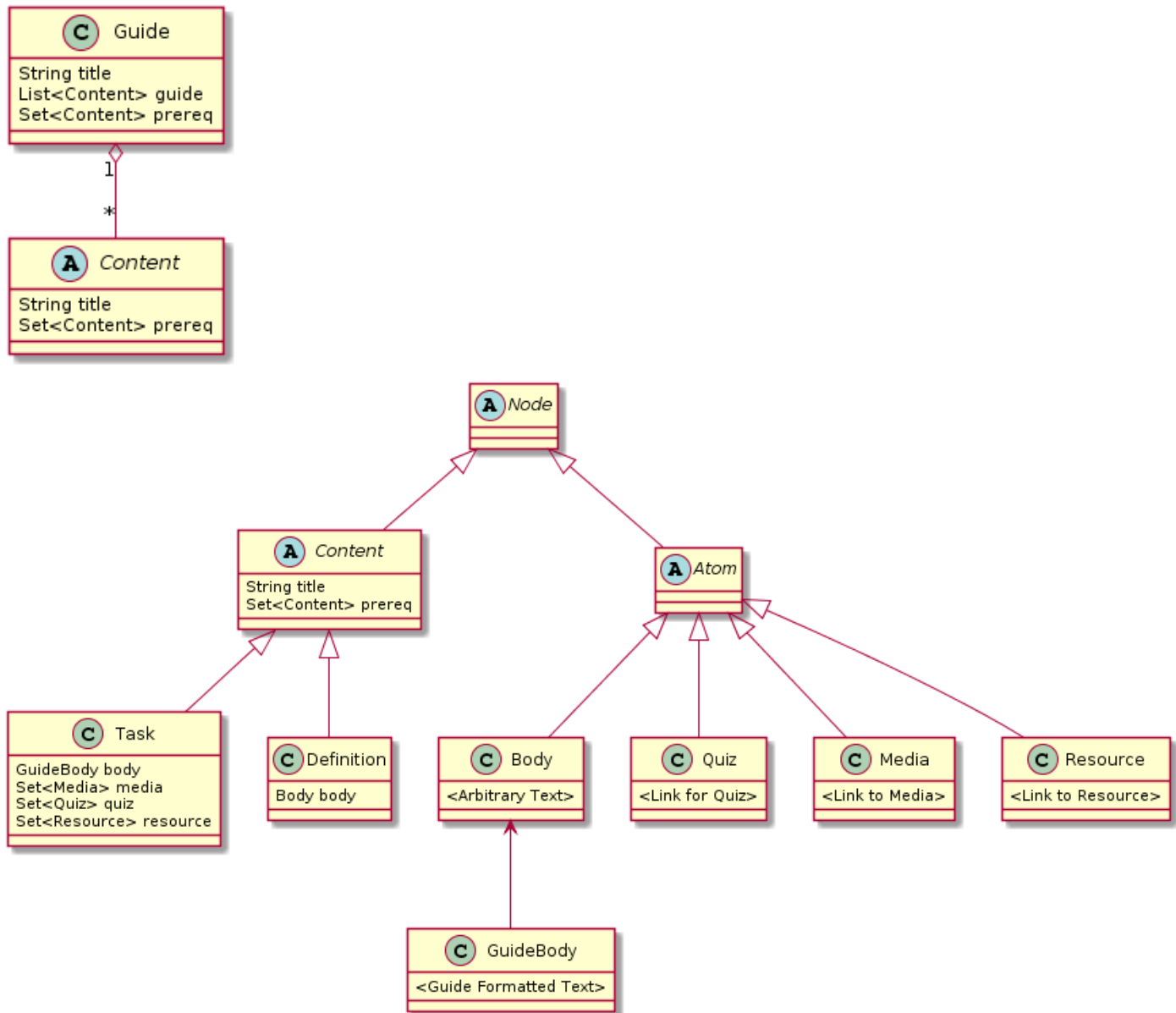
User's View Identification

User's View Representation and Description

Software Detailed Design

Developer's Viewpoint Detailed Software Design

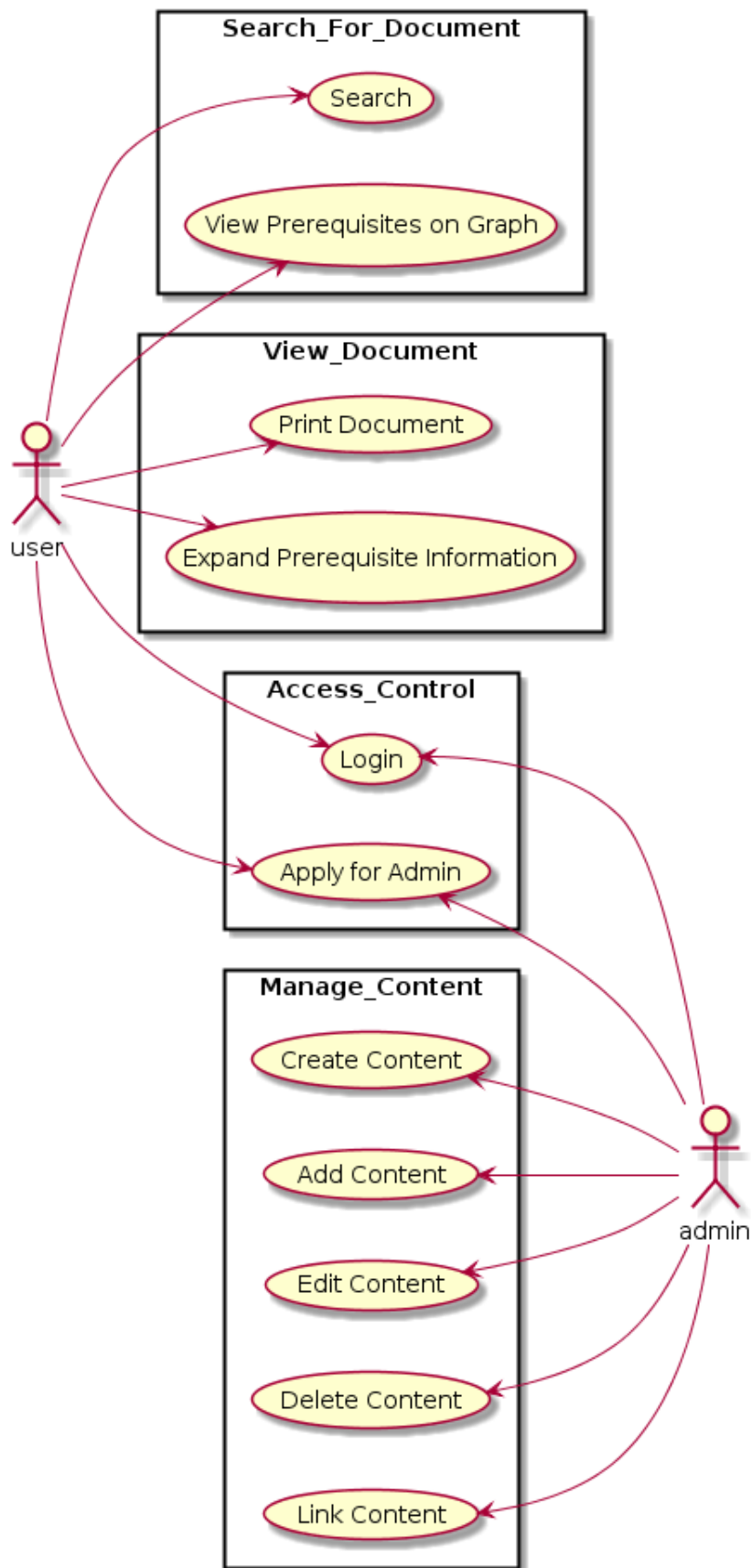
UML Class Diagrams



UML State Charts

[Did we want these?]

Use Cases



Use Case 1	Apply for Admin
<i>Scope:</i>	System-wide
<i>Level:</i>	To become site admin
<i>Brief:</i>	A user applies to become an administrator of the system so that they can manage, add, delete, and link content.
<i>Primary Actor:</i>	End-User
<i>Stakeholders and Interests:</i>	<ul style="list-style-type: none"> • Stakeholder 1 Admins: Would like to vet admin applicants to make sure qualified people are approved. • Stakeholder 2 Admin Applicant: Would like to become admin.
<i>Preconditions:</i>	User has navigated to the admin application page
<i>Postconditions:</i>	The user's application is sent to the site's admins for consideration.
<i>Main Success Scenario:</i>	
<ol style="list-style-type: none"> 1. The user navigates to the main page 2. The user clicks on Apply for Admin button 3. The user is prompted to insert personal information into application form 4. The user submits the form 5. The user is approved as an admin 6. The user is given admin credentials on the site 	
<i>Extensions:</i>	
5.a Not approved for admin account <ol style="list-style-type: none"> 1. The admin(s) decide that the prospective admin does not meet the criteria to become an admin 2. User returns to step 1 	

Use Case 2	Search for Hardening Guide
<i>Scope:</i>	System-wide
<i>Level:</i>	To find a specific document or set of documents
<i>Brief:</i>	The user types in a search term to find relevant data
<i>Primary Actor:</i>	End-User
<i>Stakeholders and Interests:</i>	<ul style="list-style-type: none"> Stakeholder 1 Users: Users would like to find relevant information to their search queries
<i>Preconditions:</i>	The user has navigated to the search page
<i>Postconditions:</i>	The search results are displayed
<i>Main Success Scenario:</i> <ol style="list-style-type: none"> The user navigates to the search page The user inputs keywords to find the hardening guide into the search bar The user clicks the "Submit" button. The relevant documents are displayed 	
<i>Extensions:</i> <ol style="list-style-type: none"> 2.a No Documents Found <ol style="list-style-type: none"> There are no relevant documents to search terms User returns to step 2 	

Use Case 3	View Prerequisites on Graph
<i>Scope:</i>	System-wide
<i>Level:</i>	To view a graph representation of the prerequisites of a hardening guide
<i>Brief:</i>	The user views overview of all steps required to make the specified software secure on that system.
<i>Primary Actor:</i>	End-User
<i>Stakeholders and Interests:</i>	<ul style="list-style-type: none"> Stakeholder 1 Users: Users can see quick display of steps needed to harden software on specific system
<i>Preconditions:</i>	The user has searched for a hardening guide on the system
<i>Post Conditions:</i>	The prerequisite information is displayed to the user
<i>Main Success Scenario:</i> <ol style="list-style-type: none"> The user searches for a hardening guide on the system The graph view displays the necessary steps to hardening the specified software on that system The user clicks on prerequisite nodes on the graph for more information The prerequisite information is displayed 	
<i>Extensions:</i> <ol style="list-style-type: none"> 2.a No prerequisites <ol style="list-style-type: none"> The item is root node User returns to step 1 	

Use Case 4	Print Document
<i>Scope:</i>	System-wide
<i>Level:</i>	To print a hardening guide
<i>Brief:</i>	The user prints off a document for off-line use.
<i>Primary Actor:</i>	End-User
<i>Stakeholders and Interests:</i>	<ul style="list-style-type: none"> • Stakeholder 1 User: User would like to print document for use later
<i>Preconditions:</i>	The user has searched for a document
<i>Post Conditions:</i>	The document is printed
<i>Main Success Scenario:</i> <ol style="list-style-type: none"> 1. The user searches for a hardening guide 2. The user finds a specific hardening guide they would like to print 3. The user clicks button to view in PDF format 4. The user clicks on the print button 5. The document is printed 	
<i>Extensions:</i> <ol style="list-style-type: none"> 1.a Cannot find document: <ol style="list-style-type: none"> 1. System shows no relevant documents 2. User returns to step 1 	

Use Case 5	Create Content
<i>Scope:</i>	System-wide
<i>Level:</i>	To create a hardening guide
<i>Brief:</i>	An admin adds a hardening guide into the system.
<i>Primary Actor:</i>	Admin
<i>Stakeholders and Interests:</i>	<ul style="list-style-type: none"> Stakeholder 1 Admins: Admins would like to post new and relevant hardening guides on site
<i>Preconditions:</i>	The user has been approved for an admin account and the user has written or found a hardening guide they would like to add.
<i>Post Conditions:</i>	The hardening guide is added to the database.
<i>Main Success Scenario:</i> <ol style="list-style-type: none"> The admin writes a hardening guide The admin logs into his account The admin clicks on "Add Content" button The admin specifies which document he/she would like to add The document is added to the database 	
<i>Extensions:</i> <ol style="list-style-type: none"> Cannot find document: <ol style="list-style-type: none"> System shows no relevant documents User returns to step 4 Document not in correct format: <ol style="list-style-type: none"> System shows document is not in correct format User returns to step 4 	

Use Case 6	Expand Prerequisite Information
<i>Scope:</i>	System-wide
<i>Level:</i>	To view prerequisite information while reading hardening guide
<i>Brief:</i>	An user clicks on a prerequisite from a drop down menu to expand prerequisite information of a hardening guide for viewing.
<i>Primary Actor:</i>	End-User
<i>Stakeholders and Interests:</i>	<ul style="list-style-type: none"> Stakeholder 1 Users: User would like to see more information on subject
<i>Preconditions:</i>	The user has found a hardening guide and needs information on a previous step in the security hardening process.
<i>Post Conditions:</i>	The prerequisite information is displayed on the page and the page is re-sized to accommodate the extra information/media.
<i>Main Success Scenario:</i> <ol style="list-style-type: none"> The user is reading a hardening guide and realizes they need information from a previous step The user scrolls to the top of the page and expands the drop down menu of prerequisite steps The prerequisite document is added to the page above the highest document The user reads the prerequisite document 	
<i>Extensions:</i> <ol style="list-style-type: none"> 5.a No prerequisite information: <ol style="list-style-type: none"> Node is a root node 	

Component Dictionary

Component Detailed Design

Data Dictionary

Requirements Traceability

Components