Spring Security

Beginner to Guru

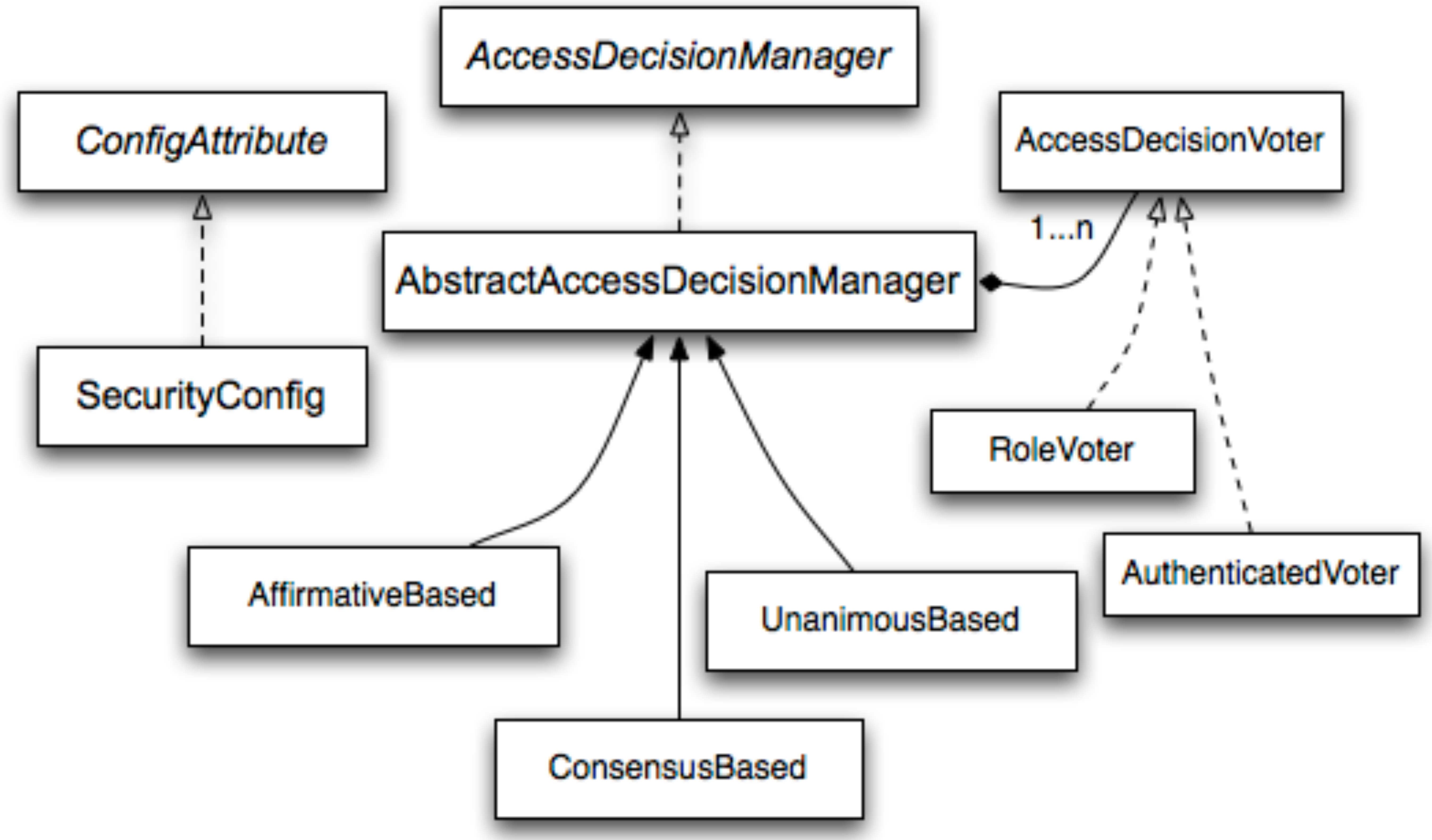
Authorization in Spring Security

Authorization in Spring Security

- Authorization is the approval to perform an action within the application
- Authorization can be as simple as allow all or is authenticated
- Specific actions can be limited to specific roles or authorities
- By default, Spring Security roles start with “ROLE_”
  - Example: ROLE_ADMIN
- Spring Security authorities may be any string value

Roles vs Authorities

- Typically a role is considered a group of one or more authorities
- In a Spring Security context:
    - Roles by default start with “ROLE_”
        - Configuration uses methods of hasRole() or hasAnyRole() - requires prefix
    - Authorities are any string
        - Configuration uses methods of hasAuthority() or hasAnyAuthority()



Source Pivotal

Access Decision Voters

- Access Decision Voters provide a vote on allowing access
  - **ACCESS_ABSTAIN** - Voter has no opinion
  - **ACCESS_DENIED** - Voter does not approve
  - **ACCESS_GRANTED** = Voter approves access

Role Voter

- Most commonly used voter in Spring Security
- Uses role names to grant access
- If Authenticated user has role, access is granted
  - If no authorities begin with prefix of ROLE_ this voter will abstain

Authenticated Voter

- Grants Access based on level of authentication
  - **Anonymously** - Not Authenticated
  - **Remembered** - Authenticated via Remember me cookie
  - **Fully** - Fully Authenticated

Consensus Voter

- Accepts list of Access Decision voters
- Polls each voter
- Access granted based on total of allowed vs denied responses

Role Hierarchy Voter

- Allows configuration of Role Hierarchies
- Example:
  - ROLE_USER
  - ROLE_ADMIN > ROLE_USER > ROLE_FOO
- ROLE_ADMIN will have all of its authorities, and those of ROLE_USER and ROLE_FOO

Security Expressions

- **permitAll** - Allows all access
- **denyAll** - Denies all access
- **isAnonymous** - Is Authenticated Anonymously
- **isAuthenticated** - Is Authenticated (Fully or Remembered)
- **isRememberMe** - Is Authenticated with Remember Me Cookie
- **isFullyAuthenticated** - Is Fully Authenticated

Security Expressions

- **hasRole** - Has authority with ROLE_***
- **hasAnyRole** - Accepts list of ROLE_*** strings
- **hasAuthority** - Has authority string value
- **hasAnyAuthority** - Accepts list of string authority values
- **hasIpAddress** - accepts IP Address or IP/Netmask

Http Filter Security Interceptor

- Securing specific URLs is done using Spring Security Filters
- Filters use configured voters to determine authorization
- Security expressions available for use in Java configuration of HttpSecurity

Method Security

- Spring Security also has method level security
- Enable using **@EnableGlobalMethodSecurity** configuration annotation
- **@Secured** - accepts list of roles, or IS_AUTHENTICATED_ANONYMOUSLY
- **@PreAuthorize** - accepts security expressions
- Under covers Spring Security is using AOP to intercept and use the AccessDecisionManager
    - Same technique as Filter

SPRING FRAMEWORK

GURU