

# Grouper Training Outline for Developers and Architects

[Link to main Grouper Training Page with all training videos](#)

Details on what's in the Developers and Architects training curriculum. Each major bullet is one training video.

- Be sure you have first reviewed the "Managers - Introduction to Grouper" training videos
- You may also want to review the "End Users" training videos
- **How to Design Groups**
  - Group and Folder structure
  - Privileges
  - Composite Groups
  - Integrating with Applications
- **Grouper Permissions**
  - Intro
  - Permission Definitions
  - Permission Names
  - Actions
  - Roles
  - Permission Assignments
  - Limits
  - Inheritance
  - Application Integration
- **Grouper WS - Part 1**
  - Introduction
  - Operations
  - SOAP / REST-like
  - Data Formats
- **Grouper WS - Part 2**
  - Introduction
  - Common features in operations
    - Result code
    - Metadata
    - Sorting/paging
    - Act As
    - Lookups
    - Transaction types
    - Include detail?
    - Subject attribute names
    - WsParams
    - Timestamps / booleans
- **Grouper WS - Part 3**
  - Introduction
  - Authentication
  - Samples
  - Documentation of structs (Javabeans)
  - Translating struct (Javabean) to:
    - SOAP
    - REST-like JSON
    - REST-like XML
    - REST-like XHTML
    - REST-like HTTP params
- **Grouper WS - Part 4**
  - Introduction
  - Operations
    - Add/delete member
    - Get members
    - Has member
    - Get memberships
    - Group save/delete
    - Find groups
    - Stem save/delete
    - Find stems
- **Grouper WS - Part 5**
  - Operations
    - Get subjects
    - Get/assign privileges
    - Get/assign attributes
    - Get/assign permissions
    - Member change subject
    - Attribute name save/delete
    - Find attributes
    - Attribute inheritance
- **Grouper Client - Part 1**
  - Introduction
  - Configuration
  - Command Line

- **Grouper Client - Part 2**
  - Documentation
  - Bugging
  - Using Grouper Client from a Java program
  - Using Grouper Client as a reference implementation
- **Grouper Client - Part 2**
  - LDAP client
  - Grouper Client as XMPP message consumer
- **LDAP**
  - Introduction
  - Advantages and disadvantages
  - Flat vs bushy structure
  - Group and Member objects – Active Directory
  - Group and Member objects – OpenLDAP
  - Other group attributes
  - Flattened memberships vs direct memberships only
  - Tips on performing queries
- **Grouper integration**
  - Groups vs Permissions
  - LDAP vs WS vs SAML Entitlements
  - Cached vs Live Calls
  - Grouper API vs local representation
  - Other Features
- **Advanced / in-depth topics**
  - Change log
  - XMPP vs custom processor
  - ESB connector
  - Hooks
  - Rules
  - Local entities
  - Renaming
  - SQL interface