

# Organizing services in Grouper

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## Overview

Grouper has a hierarchical namespace of folders in which to organize Groups, Roles, and Permissions. For large deployments of Grouper, the namespace can make the UI overwhelming for users to find the objects they want to manage.

In Grouper 2.2, the UI makes it possible to filter the registry by a service. This makes it simpler to navigate the namespace and easier to use the UI. Users can find services in the "services widget" on the main UI screen.

## Potential Use Cases

- Application owners can tag the main folder of their application as a "Service" so that users can easily find the service in the Grouper registry.
- An admin of a service can go to the UI and see which services they are an admin of, and filter the UI by that service
- A "My Services" thing in the Grouper 2.2 UI that shows users what services they can access, or perhaps can't access, and that shows users that are also a service admin for one or more services an indication that they have that role and maybe even an ability to exercise it.
- A user wants to know whether they are permitted to access a given service, and if not, a step they might take towards (re)establishing their access to it.
- Service Desk staff able to do the same on behalf of a user.
- Report on all services whose access is managed by a given Grouper instance, even if those services aren't all provided by the same IT shop.
- Service names are assigned by multiple people given that permission, and so they must not collide.
- Services could filter the subjects able to be resolved?
- A user of a service can go to the UI and see which services they are a user of, and filter the UI by that service



This "My services" feature is not designed for users who simply want to see what they have access to. One way to see that is to use the link [under the search bar \(in upper right corner\) that has your name in it](#). It is also suggested for users to take advantage of the "Favorites" feature.

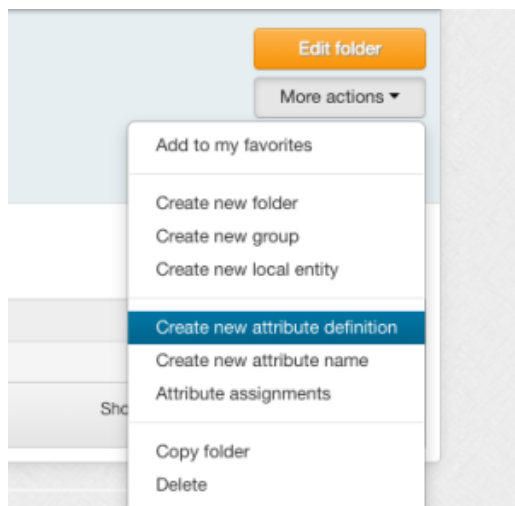
## Service design

The design for services is based on the [attribute framework](#). There is an attribute definition type reserved for this, called: service. Originally it was called "domain" but never used, and this has been refactored to "service" in Grouper 2.2+, and is automatically migrated on upgrade. A service attribute is assignable to folders. Any user who can create objects in a folder can create a service attribute and attribute name and assign it to their objects.

## Creating services

The service attribute definition can be created via GSH or the UI. Here is an example via the UI as of v2.4

Click on Create new attribute definition



fill out form and save

# New attribute definition

Create in this folder:

Enter a folder name or [search for a folder where you are allowed to create new attribute definitions](#).

Attribute definition ID:

ID is the unique identifier for this attribute definition. It should be short and simple, and might have character restrictions. The ID should rarely change, if ever.

Description:

Description contains notes about the attribute definition, which could include: what the attribute definition represents, why it was created, etc.

Type:

Service

Attribute definition type describes the attribute definition. Generally it will be attribute or permission. Type is used for templates, limit describes a permission, and service identifies which application the object refers to.

Assign to:

☒ Folder

Designate which types of objects that this definition can be assigned to. There are six base object types, or you can assign attributes to the assignment of attributes to those base object types. Membership can be assigned to an immediate or an effective membership, and will still exist as an orphan if the membership is unassigned until the membership is reassigned. Immediate membership attribute assignments are only assignable to immediate memberships and are automatically deleted once the membership is unassigned.

Multi-assignable:

☐

If this attribute can be assigned to the same owner object more than once. For instance, a Group can have more than one Rule attached to it, so the Rule attribute is multi-assignable

Value type:

No value

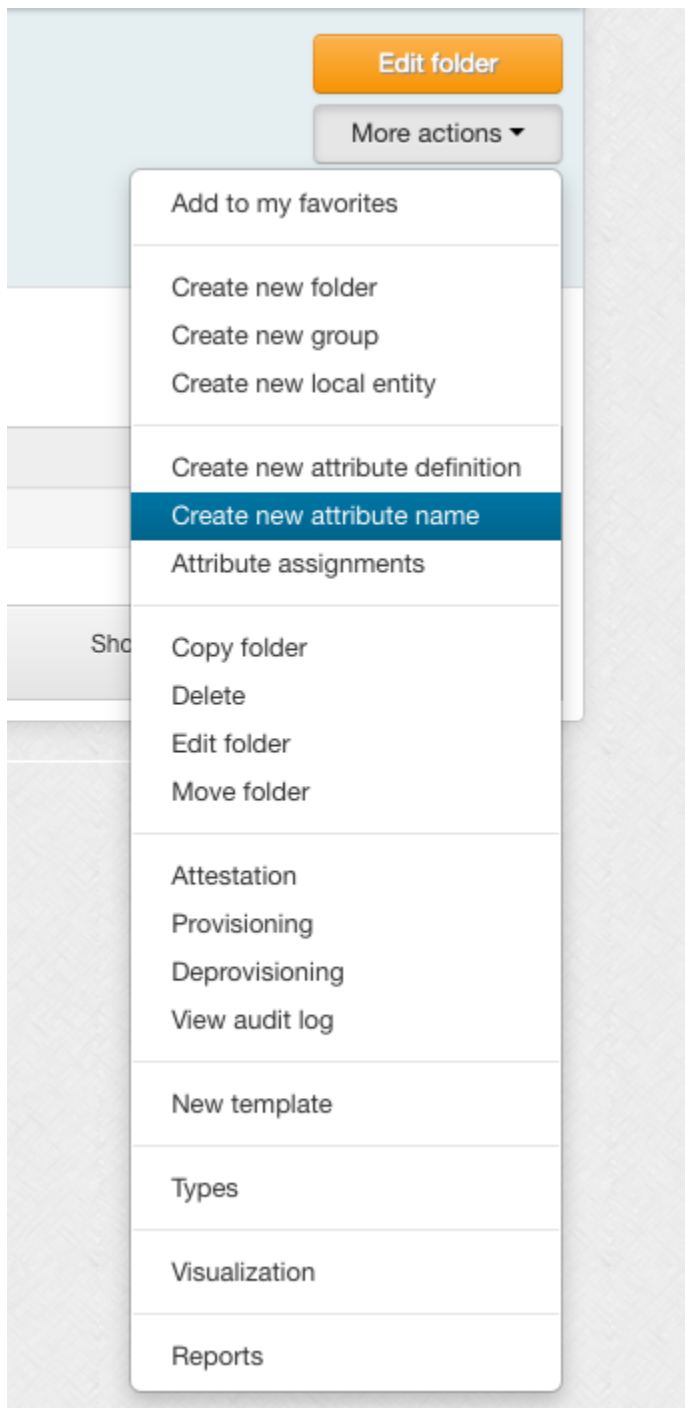
If this attribute assignment holds one or more values, this is the type. If there are no allowed values, select No value.

[Show advanced properties](#) ▾

Save

Cancel

Click on "Create new attribute name"



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fill out the form and save

---

## New attribute name

**Attribute definition:**

The attribute definition holds the settings and security for attribute. Each attribute definition can have multiple attribute names. Every attribute name is associated with one and only one attribute definition.

**Folder:**

Enter a folder name or [search for a folder where you are allowed to create new attribute def names.](#)

**Name of attribute name:**  \*

Name is the label that identifies this attribute name, and might change.

**ID of attribute name:**

☐ Edit the ID \*

ID is the unique identifier you set for this attribute name. The ID must be unique within this folder, and should rarely change. It can be used by other systems to refer to this attribute name. The ID field cannot contain spaces or special characters.

**Description:**

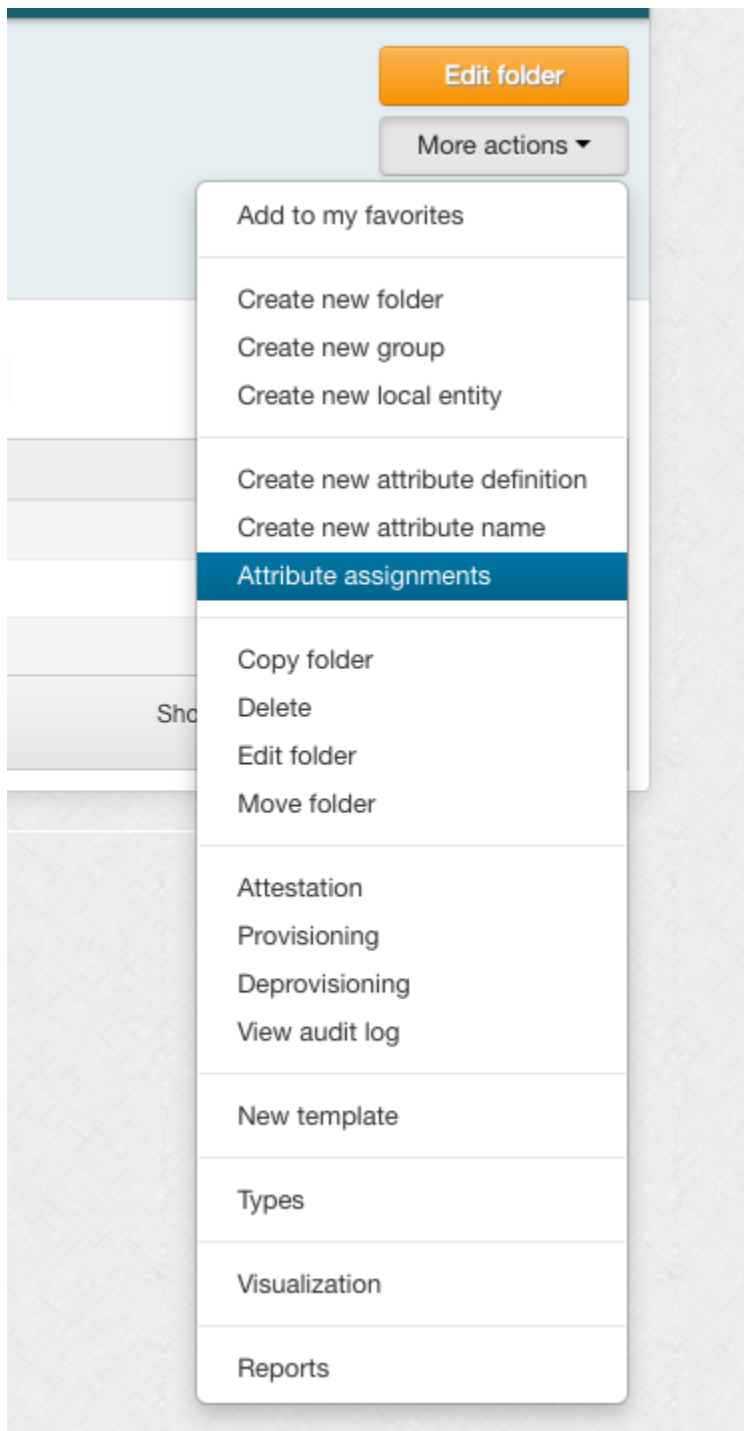
Description contains notes about the attribute name, which could include: what the attribute name represents, why it was created, etc.

Save

Cancel

Assign this attribute to the container folder for the application

Click "Attribute assignments"



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assign newly created attribute to folder

---

## Attribute Assignments

+ Assign attribute

The following table lists all attributes assigned to this folder

Attribute name:

The attribute name is the part of the attribute which is assigned to owner objects. Generally multiple attribute names are related to one attribute definition.

Save

No attributes assigned

Click save. Now any entities who are members of a group in that folder or subfolder will have that service on the main screen or services screen of the UI. Any entity who has manage privileges on a group in that folder or subfolder, will be considered an "admin" of the service. Note with groups as members and with exclude lists, this can not be 100% accurate.

Here is a GSH example of creating a service:

```
AttributeDef jiraServiceDef = new AttributeDefSave(grouperSession)
    .assignCreateParentStemsIfNotExist(true).assignAttributeDefType(AttributeDefType.service)
    .assignName("apps:jira:jiraServiceDefinition").assignToStem(true).save();

AttributeDefName jiraService = new AttributeDefNameSave(grouperSession, jiraServiceDef)
    .assignCreateParentStemsIfNotExist(true)
    .assignName("apps:jira:jiraService").assignDisplayExtension("Central IT production Jira issue tracker").
save();
```

Here are screenshots on the UI of creating a service definition and name (TODO, IT SHOULD ONLY BE ASSIGNABLE TO FOLDERS!):

Edit attribute nameNew attribute name

Attribute name

Attribute definition \*

Enter search text to find an attribute definition to filter by

apps:confluence:confluenceServiceDef

Folder \*

Enter search text to find a folder

apps:confluence

ID \*

confluenceService

Name \*

duction Confluence wiki

Description

Cancel

Attribute definition

Save

## Assigning service tags

Service tags can be assigned to folders by GSH, UI, WS, or rule. The service tag applies to the folder, all objects in the folder, and subfolders

## Service attribute validation

A Grouper Service attribute definition can not be assigned to objects other than folders. It is a marker attribute (i.e. tag), which has no value. It is single assignable, i.e. you cannot assign the attribute more than once to the same object owner.

## Services privileges

Services have the same privileges that attributes have: READ, VIEW, ADMIN, UPDATE. Note, the VIEW privilege is more complicated, generally you dont have to worry about assigning this, since if someone cannot VIEW the service, but can manage groups in the service, then they still CAN see the service in the UI/WS. This makes using services a lot easier.

GSH/API example of service privileges

```
//the directory is public
directoryServiceDef.getPrivilegeDelegate().grantPriv(SubjectFinder.findAllSubject(), AttributeDefPrivilege.ATTR_VIEW, false);
```

UI example of service privileges (TODO: NOTE ONLY ASSIGNABLE TO FOLDERS!!!)

Create or edit attribute definitions

Attribute management

Enter search text to find an attribute definition

Edit attribute definition   New attribute definition

Attribute definition

Folder

apps: directory:

UUID
23ae4be9fd5640569a0418cebeca6486

ID
directoryServiceDefinition

Type
Service

Description

Multi-assignable

Value type
No value

Multi-valued

Assign to

☒ Attribute definition
☐ Attribute definition attribute assignment
☒ Folder
☐ Folder attribute assignment
☒ Group / Role / Local entity
☐ Group / Role / Local entity attribute assignment
☐ Member
☐ Member attribute assignment
☐ Membership
☐ Membership attribute assignment
☐ Membership - immediate only
☐ Membership - immediate only - attribute assignment

Assign privileges to everyone
☐ admin
☐ update
☐ read
☒ view
☐ optin
☐ optout

Delete   Cancel   Actions   Privileges   Attribute names   Save

Attribute definition privileges

Add entity to list

Enter search text to find an entity to add to the list

Add entity to list

Indirect privileges
☐ Show indirect privileges due to group memberships

Showing privilege entities: 1-2 of 2   page size: 30

Admin   Read   Update   Optin   Optout   View   Entity

☒ ☒ ☒ ☒ ☒ ☒ ☐ EveryEntity

☒ ☒ ☒ ☒ ☒ ☒ ☐ GrouperSysAdmin

Cancel   Save

Result page: 1

## Using Grouper services

Services should be exposed by the UI/WS/API. i.e. you should be able to do a GroupFinder filter and restrict the results to a certain service. You should be able to list the services for a user. You could be able to browse the repository and operate comboboxes in the context of a particular service.

### API

Find members in a service:

```
MembershipResult membershipResult = new MembershipFinder().assignServiceId(confluenceService.getId())
    .assignServiceRole(ServiceRole.admin).findMembershipResult();

List<Member> members = new ArrayList<Member>(membershipResult.members());
```

Find services for a user:

```
Set<AttributeDefName> attributeDefNames = new AttributeDefNameFinder().assignSubject(SubjectTestHelper.
    SUBJ0)
    .assignServiceRole(ServiceRole.user).findAttributeNames();
```

### WS

- getMemberships: find members in a service: send in the serviceRole (e.g. admin|user), and service lookup (uuid or name of service)
- findAttributeDefNames: find services for a user: find in the serviceRole (e.g. admin|user), and entity lookup (subject id, source id, subject identifier)

### Client

- find members in a service:

```
c:\temp> java -jar grouperClient.jar --operation=getMembershipsWs --serviceName=school:apps:wiki --serviceRole=admin
Index 0: group: school:apps:wiki:groups:admins, subject: jsmith, list: updaters, type: Immediate, enabled: T
Index 1: group: school:apps:wiki:groups:users, subject: hjohnson, list: admins, type: Immediate, enabled: T
```

- find services for a user:

```
c:\temp> java -jar grouperClient.jar --operation=findAttributeDefNamesWs --scope=% --serviceRole=user --subjectId=jsmith
Index 0: name: school:apps:wiki, displayName: School:Applications:Wiki
Index 1: name: school:apps:pto, displayName: School:Applications:Paid Time Off
```

## Metadata

We should have a requirement that there is one service definition per service name, and there could be some built in metadata on the service definition, like who the owner is, a link if people have problems, contact info, description, etc.

## Developing

- There is a view that is hibernated and can be joined to for queries: grouper\_service\_role\_v mapped to Java object: ServiceRoleView
- You can join to this view by group, or attribute, etc. The membership column should have security joined to it:

```
whereClause.append(" and theAttributeDefName.id = theServiceRoleView.serviceNameId ");
changedQuery = grouperSession.getAccessResolver().hqlFilterGroupsWhereClause(
    grouperSession.getSubject(), byHqlStatic,
    sql, "theServiceRoleView.groupId", AccessPrivilege.READ_PRIVILEGES);

//fields for the service role
HibUtils.convertFieldsToSqlInString(serviceRole.fieldsForGroupQuery(), byHqlStatic, whereClause,
    "theServiceRoleView.fieldId");
whereClause.append(" and theServiceRoleView.memberId = :groupMemberId ");
byHqlStatic.setString("groupMemberId", member.getUuid());
```

## API

In the [Grouper API](#) you can get services for a user (note, this is for groups in services where the grouper session can read memberships (or admin)

```
Set<AttributeDefName> attributeDefNames = new AttributeDefNameFinder().assignSubject(SubjectTestHelper.SUBJ0)
    .assignServiceRole(ServiceRole.user).findAttributeNames();
```

Here is a web service request:

```
<WsRestFindAttributeDefNamesRequest>
  <scope>%</scope>
  <serviceRole>user</serviceRole>
  <subjectLookup>
    <subjectId>test.subject.0</subjectId>
  </subjectLookup>
</WsRestFindAttributeDefNamesRequest>
```

Web service response:

```

<WsFindAttributeDefNamesResults>
  <attributeDefNameResults>
    <WsAttributeDefName>
      <idIndex>10090</idIndex>
      <extension>jiraService</extension>
      <displayExtension>Central IT production Jira issue tracker
      </displayExtension>
      <displayName>apps:jira:Central IT production Jira issue tracker
      </displayName>
      <name>apps:jira:jiraService</name>
      <uuid>d528f5888e964384be6cc7ed39e3d006</uuid>
      <attributeDefId>05b934189bd342aba0979fafec5e9c07</attributeDefId>
      <attributeDefName>apps:jira:jiraServiceDefinition
      </attributeDefName>
    </WsAttributeDefName>
  </attributeDefNameResults>
  <attributeDefs>
    <WsAttributeDef>
      <idIndex>10022</idIndex>
      <extension>jiraServiceDefinition</extension>
      <name>apps:jira:jiraServiceDefinition</name>
      <uuid>05b934189bd342aba0979fafec5e9c07</uuid>
      <attributeDefType>service</attributeDefType>
      <multiAssignable>F</multiAssignable>
      <multiValued>F</multiValued>
      <valueType>marker</valueType>
    </WsAttributeDef>
  </attributeDefs>
  <resultMetadata>
    <resultCode>SUCCESS</resultCode>
    <resultMessage>Success for: clientVersion: 2.2.0, scope: %,
      splitScope: null, wsAttributeDefLookup: null, attributeAssignType:
      null, attributeDefType: null
      wsAttributeDefNameLookups: null
      wsInheritanceSetRelation: null, pageSize: null, pageNumber: null, sortString: null, ascending:
      null, actAsSubject: null, paramNames:
      , params: null
      , wsSubjectLookup: WsSubjectLookup[subjectId=test.subject.0],
      serviceRole: user
    </resultMessage>
    <success>T</success>
  </resultMetadata>
  <responseMetadata>
    <resultWarnings></resultWarnings>
    <millis>9285</millis>
    <serverVersion>2.2.0</serverVersion>
  </responseMetadata>
</WsFindAttributeDefNamesResults>

```

## Questions

1. If you are a member of a group in a service, then should you see it in your service drop down? (yes because it would be too hard to maintain if each user of a service has to be assigned to VIEW the service)
2. Can you see groups you are a member of if you cannot READ that group (My Memberships)? I think that is the current functionality. if it is then it will continue to work