Grouper rules pattern - Send email due to permissions disabled date

Grouper rules

If an entity is going to be disabled from permissions, send an email to the employee and an admin

Assign this rule to the permission definition of the permission that is disabled.

Java example

```
    //add a rule on the permission definition saying if you are about to lose a permission by all paths
(flattened), then send an email
    AttributeAssign attributeAssign = permissionDef
      .getAttributeDelegate().addAttribute(RuleUtils.ruleAttributeDefName()).getAttributeAssign();

    attributeAssign.getAttributeValueDelegate().assignValue(
        RuleUtils.ruleActAsSubjectSourceIdName(), actAsSubject.getSourceId());
    attributeAssign.getAttributeValueDelegate().assignValue(
        RuleUtils.ruleActAsSubjectIdName(), actAsSubject.getId());
    attributeAssign.getAttributeValueDelegate().assignValue(
        RuleUtils.ruleCheckTypeName(),
        RuleCheckType.permissionDisabledDate.name());

    //will find memberships with a disabled date at least 6 days from now.  blank means no min
    attributeAssign.getAttributeValueDelegate().assignValue(
        RuleUtils.ruleCheckArg0Name(), daysInFutureDisabledDateMin == null ? null : daysInFutureDisabledDateMin.
toString());

    //will find memberships with a disabled date at most 8 days from now.  blank means no max
    attributeAssign.getAttributeValueDelegate().assignValue(
        RuleUtils.ruleCheckArg1Name(), daysInFutureDisabledDateMax == null ? null : daysInFutureDisabledDateMax.
toString());

    attributeAssign.getAttributeValueDelegate().assignValue(
        RuleUtils.ruleThenEnumName(), RuleThenEnum.sendEmail.name());
    attributeAssign.getAttributeValueDelegate().assignValue(
        RuleUtils.ruleThenEnumArg0Name(), emailToValue);
    attributeAssign.getAttributeValueDelegate().assignValue(
        RuleUtils.ruleThenEnumArg1Name(), emailSubjectValue);

    //the to, subject, or body could be text with EL variables, or could be a template.  If template, it is
    //read from the classpath from package: grouperRulesEmailTemplates/theTemplateName.txt
    //or you could configure grouper.properties to keep them in an external folder, not in the classpath
    attributeAssign.getAttributeValueDelegate().assignValue(
        RuleUtils.ruleThenEnumArg2Name(), emailBodyValue);

    //should be valid
    String isValidString = attributeAssign.getAttributeValueDelegate().retrieveValueString(
        RuleUtils.ruleValidName());

    if (!StringUtils.equals("T", isValidString)) {
      throw new RuntimeException(isValidString);
    }
```

GSH shorthand method

```
RuleApi.emailOnFlattenedPermissionDisabledDate(SubjectFinder.findRootSubject(), permissionDef, 6, 8,
GrouperConfig.getProperty("mail.test.address") + ", ${safeSubject.emailAddress}", "You will have this
permission unassigned: ${attributeDefNameDisplayExtension} in role ${roleDisplayExtension}, removed on
${ruleElUtils.formatDate(permissionDisabledTimestamp, 'yyyy/MM/dd')}", "Hello ${safeSubject.name},\n\nJust
letting you know you will have this permission removed ${attributeDefNameDisplayExtension} in role
${roleDisplayExtension}, removed on ${ruleElUtils.formatDate(permissionDisabledTimestamp, 'yyyy/MM/dd')} in the
central Groups / Permissions management system.  Please do not respond to this email.\n\nRegards.");
```

GSH test case

```
gsh 0% grouperSession = GrouperSession.startRootSession();
edu.internet2.middleware.grouper.GrouperSession: 755a39e6672d4f60bfca6cc5ed065b5d,'GrouperSystem','application'

//permission definition
gsh 1% permissionDef = new AttributeDefSave(grouperSession).assignName("stem:permissionDef").
assignCreateParentStemsIfNotExist(true).assignAttributeDefType(AttributeDefType.perm).save();
edu.internet2.middleware.grouper.attr.AttributeDef: AttributeDef[name=stem:permissionDef,
uuid=a1522fe8665443538a4f7a7529c5996d]
gsh 2% permissionDef.setAssignToEffMembership(true);
gsh 3% permissionDef.setAssignToGroup(true);
gsh 4% permissionDef.store();

//run daemon once
gsh 6% RuleApi.emailOnFlattenedPermissionDisabledDate(SubjectFinder.findRootSubject(), permissionDef, 6, 8,
"a@b.c, ${safeSubject.emailAddress}", "You will have this permission unassigned:
${attributeDefNameDisplayExtension} in role ${roleDisplayExtension}, removed on ${ruleElUtils.formatDate
(permissionDisabledTimestamp, 'yyyy/MM/dd')}", "Hello ${safeSubject.name},\n\nJust letting you know you will
have this permission removed ${attributeDefNameDisplayExtension} in role ${roleDisplayExtension}, removed on
${ruleElUtils.formatDate(permissionDisabledTimestamp, 'yyyy/MM/dd')} in the central Groups / Permissions
management system.  Please do not respond to this email.\n\nRegards.");
edu.internet2.middleware.grouper.attr.assign.AttributeAssign: AttributeAssign
[id=01e759e67c424ded95665ddf0ee0f6b6,action=assign,attributeDefName=etc:attribute:rules:rule,
  attributeDef=AttributeDef[name=stem:permissionDef,uuid=a1522fe8665443538a4f7a7529c5996d]]

//hasnt fired yet
gsh 7% GrouperEmail.testingEmailCount
java.lang.Long: 0

//two roles
gsh 8% payrollUser = new GroupSave(grouperSession).assignName("apps:payroll:roles:payrollUser").
assignTypeOfGroup(TypeOfGroup.role).assignCreateParentStemsIfNotExist(true).save();
group: name='apps:payroll:roles:payrollUser' displayName='apps:payroll:roles:payrollUser'
uuid='bd2872af67bc42b3ada16566985854c4'
gsh 9% payrollGuest = new GroupSave(grouperSession).assignName("apps:payroll:roles:payrollGuest").
assignTypeOfGroup(TypeOfGroup.role).assignCreateParentStemsIfNotExist(true).save();
group: name='apps:payroll:roles:payrollGuest' displayName='apps:payroll:roles:payrollGuest'
uuid='104bc36f602f4dce868eba7196fee11b'

//three users
gsh 10% subject0 = SubjectFinder.findByIdAndSource("test.subject.0", "jdbc", true);
subject: id='test.subject.0' type='person' source='jdbc' name='my name is test.subject.0'
gsh 11% subject1 = SubjectFinder.findByIdAndSource("test.subject.1", "jdbc", true);
subject: id='test.subject.1' type='person' source='jdbc' name='my name is test.subject.1'
gsh 12% subject2 = SubjectFinder.findByIdAndSource("test.subject.2", "jdbc", true);
subject: id='test.subject.2' type='person' source='jdbc' name='my name is test.subject.2'

//payroll user has the permission
gsh 13% payrollUser.addMember(subject1, false);
true

//payroll guest requires user to have permission explicitly assigned
gsh 14% payrollGuest.addMember(subject0, false);
true
gsh 15% payrollGuest.addMember(subject2, false);
true
```

```
//permission resource
gsh 16% canLogin = new AttributeDefNameSave(grouperSession, permissionDef).assignName("apps:payroll:permissions:
canLogin").assignCreateParentStemsIfNotExist(true).save();
edu.internet2.middleware.grouper.attr.AttributeDefName: AttributeDefName[name=apps:payroll:permissions:canLogin,
uuid=943475dbdcac45efa2335c6a8c399971]

//assign resource to the user role
gsh 17% payrollUser.getPermissionRoleDelegate().assignRolePermission(canLogin);
edu.internet2.middleware.grouper.attr.assign.AttributeAssignResult: edu.internet2.middleware.grouper.attr.
assign.AttributeAssignResult@15e601

//assign subject2 directly to permission
gsh 18% payrollGuest.getPermissionRoleDelegate().assignSubjectRolePermission(canLogin, subject2);
edu.internet2.middleware.grouper.attr.assign.AttributeAssignResult: edu.internet2.middleware.grouper.attr.
assign.AttributeAssignResult@1a70476

//assign subject0 to permission, but keep assignment to be able to put disabled date on it
gsh 19% attributeAssign = payrollGuest.getPermissionRoleDelegate().assignSubjectRolePermission(canLogin,
subject0).getAttributeAssign();
edu.internet2.middleware.grouper.attr.assign.AttributeAssign:
[id=12c472cea0ce471bba0d05acb3ab167a,action=assign,attributeDefName=apps:payroll:permissions:canLogin,
  group=Group[name=apps:payroll:roles:payrollGuest,uuid=104bc36f602f4dce868eba7196fee11b],
  subjectId='test.subject.0'/'person'/'jdbc']

//run daemon, still shouldnt find it.
gsh 20% GrouperLoader.runOnceByJobName(grouperSession, GrouperLoaderType.GROUPER_RULES);
loader ran successfully: Ran rules daemon, changed 0 records

gsh 21% GrouperEmail.testingEmailCount
java.lang.Long: 0

//set disabled time of permission to be 7 days in the future
gsh 23% attributeAssign.setDisabledTime(new java.sql.Timestamp(System.currentTimeMillis() + (7 * 24 * 60 * 60 *
1000)));
gsh 24% attributeAssign.saveOrUpdate();

//find that record and send an email
gsh 25% GrouperLoader.runOnceByJobName(grouperSession, GrouperLoaderType.GROUPER_RULES);
loader ran successfully: Ran rules daemon, changed 0 records
gsh 26% GrouperEmail.testingEmailCount
java.lang.Long: 1

//set 5 days in advance, and it is not between 6 and 8, so it wont find it
gsh 27% attributeAssign.setDisabledTime(new java.sql.Timestamp(System.currentTimeMillis() + (5 * 24 * 60 * 60 *
1000)));
gsh 28% attributeAssign.saveOrUpdate();
gsh 29% GrouperLoader.runOnceByJobName(grouperSession, GrouperLoaderType.GROUPER_RULES);
loader ran successfully: Ran rules daemon, changed 0 records

// still one email sent
gsh 30% GrouperEmail.testingEmailCount
java.lang.Long: 1

//set it 9 days in advance
gsh 31% attributeAssign.setDisabledTime(new java.sql.Timestamp(System.currentTimeMillis() + (9 * 24 * 60 * 60 *
1000)));
gsh 32% attributeAssign.saveOrUpdate();
gsh 33% GrouperLoader.runOnceByJobName(grouperSession, GrouperLoaderType.GROUPER_RULES);
loader ran successfully: Ran rules daemon, changed 0 records

//out of bounds
gsh 34% GrouperEmail.testingEmailCount
java.lang.Long: 1
gsh 35% attributeAssign.setDisabledTime(new java.sql.Timestamp(System.currentTimeMillis() + (7 * 24 * 60 * 60 *
1000)));
gsh 36% attributeAssign.saveOrUpdate();

//run the daemon and find another record
gsh 37% GrouperLoader.runOnceByJobName(grouperSession, GrouperLoaderType.GROUPER_RULES);
loader ran successfully: Ran rules daemon, changed 0 records
gsh 38% GrouperEmail.testingEmailCount
```

```
java.lang.Long: 2

//add another path without a disabled date, and it should not find it this time
gsh 39% payrollUser.addMember(subject0, false);
true
gsh 40% GrouperLoader.runOnceByJobName(grouperSession, GrouperLoaderType.GROUPER_RULES);
loader ran successfully: Ran rules daemon, changed 0 records

//same number, no new emails
gsh 41% GrouperEmail.testingEmailCount
java.lang.Long: 2
gsh 42%
```

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