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## Usages

- To provide the ability to integrate users from external system. E.g. Active Directory or LDAP
- Directory Manager Plugin can be used in [Settings - Directory Manager](#).
- A useable Directory Manager plugin must extends [org.joget.directory.model.service.DefaultDirectoryManagerPlugin](#) abstract class.

## Abstract Class

### **org.joget.directory.model.service.DefaultDirectoryManagerPlugin**

- Under wflow-directory module
- Extended [org.joget.plugin.base.ExtDefaultPlugin](#). Please refer to [Plugin Base Abstract Class and Interface](#).
- Implemented [org.joget.plugin.property.model.PropertyEditable](#). Please refer to [Plugin Base Abstract Class and Interface](#).
- A base abstract class to develop a Directory Manager Plugin

#### **Method Detail**

##### Abstract Methods

authenticate

```
public boolean authenticate(java.lang.String username, java.lang.String password)
```

Method called to authenticate a particular User against the directory

getDepartmentById

```
public org.joget.directory.model.Department getDepartmentById(java.lang.String departmentId)
```

Method called to retrieve a specific Department by Department Id

getDepartmentByName

```
public org.joget.directory.model.Department getDepartmentByName(java.lang.String name)
```

Method called to retrieve a specific Department by Department Name

```
getDepartmentHod

public org.joget.directory.model.User getDepartmentHod(java.lang.String departmentId)

    Method called to return a specific HOD for a Department

getDepartmentList

public java.util.Collection<org.joget.directory.model.Department> getDepartmentList()

    Generic method called to retrieve all Departments within the directory

getDepartmentList

public java.util.Collection<org.joget.directory.model.Department> getDepartmentList(java.lang.String sort,
java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve all Departments within the directory filtered by search parameters

getDepartmentListByOrganization

public java.util.Collection<org.joget.directory.model.Department> getDepartmentListByOrganization(java.lang.String organizationId, java.lang.String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve all Departments within a specific Organization filtered by search parameters

getDepartmentsByOrganizationId

public java.util.Collection<org.joget.directory.model.Department> getDepartmentsByOrganizationId(java.lang.String filterString, java.lang.String organizationId, java.lang.String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve all Departments within a specific Organization filtered by search parameters

getDepartmentsByParentId

public java.util.Collection<org.joget.directory.model.Department> getDepartmentsByParentId(java.lang.String filterString, java.lang.String parentId, java.lang.String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve all sub Department within a specific Department filtered by search parameters

getDepartmentUserByGradeId

public java.util.Collection<org.joget.directory.model.User> getDepartmentUserByGradeId(java.lang.String departmentId, java.lang.String gradeId)

    Method called to retrieve a listing of Users which belongs to a specified Department and Grade

getParentDepartment

public org.joget.directory.model.Department getParentDepartment(java.lang.String id)

    Method called to retrieve a parent Department of a Department

getParentDepartmentByName

public org.joget.directory.model.Department getParentDepartmentByName(java.lang.String name)

    Method called to retrieve a parent Department of a Department by Department Name

getTotalDepartments

public java.lang.Long getTotalDepartments(java.lang.String organizationId)

    Method called to retrieve the number of Departments within the directory

getTotalDepartmentsByOrganizationId

public java.lang.Long getTotalDepartmentsByOrganizationId(java.lang.String filterString, java.lang.String organizationId)

    Method called to retrieve the number of Departments within a specific Organization filtered by search parameters

getTotalDepartmentsByParentId

public java.lang.Long getTotalDepartmentsByParentId(java.lang.String filterString, java.lang.String parentId)

    Method called to retrieve the number of sub Departments within a specific Department
```

```

getEmployment

public org.joget.directory.model.Employment getEmployment(java.lang.String id)

    Method called to retrieve a specific Employment info

getEmployments

public java.util.Collection<org.joget.directory.model.Employment> getEmployments(java.lang.String
filterString, java.lang.String organizationId, java.lang.String departmentId, java.lang.String gradeId, java.
lang.String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve the users' employment info within the directory filtered by search parameters

getTotalEmployments

public java.lang.Long getTotalEmployments(java.lang.String filterString, java.lang.String organizationId,
java.lang.String departmentId, java.lang.String gradeId)

    Method called to retrieve the number of users' employment info within the directory

getGradeById

public org.joget.directory.model.Grade getGradeById(java.lang.String gradeId)

    Method called to retrieve a specific Grade by Grade id

getGradeByName

public org.joget.directory.model.Grade getGradeByName(java.lang.String name)

    Method called to retrieve a specific Grade by Grade Name

getGradeList

public java.util.Collection<org.joget.directory.model.Grade> getGradeList()

    Generic method called to retrieve all Grades within the directory

getGradesByOrganizationId

public java.util.Collection<org.joget.directory.model.Grade> getGradesByOrganizationId(java.lang.String
filterString, java.lang.String organizationId, java.lang.String sort, java.lang.Boolean desc, java.lang.
Integer start, java.lang.Integer rows)

    Method called to retrieve all Grades within a specific Organization filtered by search parameters

getTotalGradesByOrganizationId

public java.lang.Long getTotalGradesByOrganizationId(java.lang.String filterString, java.lang.String
organizationId)

    Method called to retrieve the number of Grades within a specific Organization filtered by search parameters

getGroupById

public org.joget.directory.model.Group getGroupById(java.lang.String groupId)

    Method called to retrieve a specific Group by id

getGroupByName

public org.joget.directory.model.Group getGroupByName(java.lang.String groupName)

    Method called to retrieve a specific Group by name

getGroupsByUserId

public java.util.Collection<org.joget.directory.model.Group> getGroupsByUserId(java.lang.String
filterString, java.lang.String userId, java.lang.String organizationId, java.lang.Boolean inGroup, java.lang.
String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve a collection of Group in/not in which a user belongs to and filtered by search parameters

getGroupByUsername

public java.util.Collection<org.joget.directory.model.Group> getGroupByUsername(java.lang.String username)

    Method called to retrieve a collection of Group in which a user belongs to

```

```
getGroupList

public java.util.Collection<org.joget.directory.model.Group> getGroupList()

    Generic method called to retrieve the entire Group listing within the directory

getGroupList

public java.util.Collection<org.joget.directory.model.Group> getGroupList(java.lang.String nameFilter, java.lang.String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve the entire Group listing within the directory filtered by search parameters

getGroupsByOrganizationId

public java.util.Collection<org.joget.directory.model.Group> getGroupsByOrganizationId(java.lang.String filterString, java.lang.String organizationId, java.lang.String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve all groups within a specific Organization filtered by search parameters

getTotalGroups

public java.lang.Long getTotalGroups()

    Method call to retrieve the number of Groups available

getTotalGroupsByOrganizationId

public java.lang.Long getTotalGroupsByOrganizationId(java.lang.String filterString, java.lang.String organizationId)

    Method call to retrieve the number of Groups available within a specific Organization filtered by search parameters

getTotalGroupsById

public java.lang.Long getTotalGroupsById(java.lang.String filterString, java.lang.String userId, java.lang.String organizationId, java.lang.Boolean inGroup)

    Method called to retrieve the number of Group in/not in which a user belongs to

getOrganization

public org.joget.directory.model.Organization getOrganization(java.lang.String id)

    Method called to retrieve a specific Organization by Id

getOrganizationByName

public org.joget.directory.model.Organization getOrganizationByName(String name)

    Method called to retrieve a specific Organization by Name

getOrganizationsByFilter

public java.util.Collection<org.joget.directory.model.Organization> getOrganizationsByFilter(java.lang.String filterString, java.lang.String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve all Organizations filtered by search parameters

getTotalOrganizationsByFilter

public java.lang.Long getTotalOrganizationsByFilter(java.lang.String filterString)

    Method called to retrieve the number of Organizations

getUserByDepartmentId

public java.util.Collection<org.joget.directory.model.User> getUserByDepartmentId(java.lang.String departmentId)

    Method called to retrieve a listing of Users by Department id

getUserByGradeId

public java.util.Collection<org.joget.directory.model.User> getUserByGradeId(java.lang.String gradeId)

    Method called to retrieve a listing of Users by Grade id
```

```
getUserById

public java.util.Collection<org.joget.directory.model.User> getUserById(java.lang.String groupId)

    Method called to retrieve a listing of Users by Group id

getUserByName

public java.util.Collection<org.joget.directory.model.User> getUserByName(java.lang.String groupName)

    Method called to retrieve a listing of Users by Group name

getUserById

public org.joget.directory.model.User getUserById(java.lang.String userId)

    Method called to retrieve a specific User by User id

getUserByOrganizationId

public java.util.Collection<org.joget.directory.model.User> getUserByOrganizationId(java.lang.String organizationId)

    Method called to retrieve a listing of Users by Organization id

getUserByUsername

public org.joget.directory.model.User getUserByUsername(java.lang.String username)

    Method called to retrieve a specific User by Username

getUserList

public java.util.Collection<org.joget.directory.model.User> getUserList()

    Generic method called to retrieve the entire User listing within the directory

getUserList

public java.util.Collection<org.joget.directory.model.User> getUserList(java.lang.String nameFilter, java.lang.String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve the entire User listing within the directory filtered by search parameters

getUsers

public java.util.Collection<org.joget.directory.model.User> getUsers(java.lang.String filterString, java.lang.String organizationId, java.lang.String departmentId, java.lang.String gardeId, java.lang.String groupId, java.lang.String roleId, java.lang.String active, java.lang.String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve the users within the directory filtered by search parameters

 getTotalUsers

public java.lang.Long getTotalUsers()

    Method called to retrieve the number of Users available

 getTotalUsers

public java.lang.Long getTotalUsers(java.lang.String filterString, java.lang.String organizationId, java.lang.String departmentId, java.lang.String gardeId, java.lang.String groupId, java.lang.String roleId, java.lang.String active)

    Method call to retrieve the number of Users available within the directory filtered by search parametersisUserInGroup

isUserInGroup

public boolean isUserInGroup(java.lang.String username, java.lang.String groupName)

    Method called to check if a User belongs to a specific Group

getUserDepartmentUser

public java.util.Collection<org.joget.directory.model.User> getUserDepartmentUser(java.lang.String username)

    Method called to retrieve a listing of Users which belongs to the same Department as the specific Username

getUserHod
```

```

public java.util.Collection<org.joget.directory.model.User> getUserHod(java.lang.String username)

    Method called to retrieve a listing of HODs in which a specific User reports to

getUserSubordinate

public java.util.Collection<org.joget.directory.model.User> getUserSubordinate(java.lang.String username)

    Method called to retrieve a listing of all the subordinates which reports to a specific User

getUsersSubordinate

public java.util.Collection<org.joget.directory.model.User> getUsersSubordinate(java.lang.String username,
java.lang.String sort, java.lang.Boolean desc, java.lang.Integer start, java.lang.Integer rows)

    Method called to retrieve a listing of all the subordinates which reports to a specific User filtered by search parameters

getTotalUsersSubordinate

public java.lang.Long getTotalUsersSubordinate(java.lang.String username)

    Method called to retrieve the number of subordinates which reports to a specific User

getUserRoles

public java.util.Collection<org.joget.directory.model.Role> getUserRoles(java.lang.String username)

    Method called to retrieve the Roles belonging to a specific User by Username

```

#### Utility Methods

```

getDirectoryManagerImpl

public org.joget.directory.model.service.DirectoryManager getDirectoryManagerImpl(java.util.Map properties)

    Used by System to retrieve a directory manager implementation

```

## Interface

### **org.joget.directory.model.service.UserSecurityFactory**

- Under wflow-directory module
- An interface that can be implemented by a DirectoryManager implementation to provide a UserSecurity implementation

#### Method Detail

##### Interface Methods

```

getUserSecurity

public org.joget.directory.model.service.UserSecurity getUserSecurity()

    Method to return a UserSecurity implementation to enhance the user security

```

### **org.joget.directory.model.service.UserSecurity**

- Under wflow-directory module
- Interface for user security enhancement.
- Used to extend the ability of Directory Manager Plugin when managing local user directory.
- An implementation needs to return through the [getUserSecurity](#) method in a Directory Manager plugin.

#### Method Detail

##### Interface Methods

```

getPropertyOptions

public java.lang.String getPropertyOptions()

    Get JSON property options to embed into the property options of Directory Manager Plugin

setProperties

```

```
public void setProperties(java.util.Map<java.lang.String, java.lang.Object> properties)
    Set properties to use in User Security Implementation

getProperties
public java.util.Map<java.lang.String, java.lang.Object> getProperties()
    Get properties to use in User Security Implementation

getDisableHashLogin
public java.lang.Boolean getDisableHashLogin()
    Disable Hash Login?

getAllowSessionTimeout
public java.lang.Boolean getAllowSessionTimeout()
    Allow Session Timeout?

getForceSessionTimeout
public java.lang.Boolean getForceSessionTimeout()
    Force Session Timeout?

getAuthenticateAllApi
public java.lang.Boolean getAuthenticateAllApi()
    Authenticate all API?

encryptPassword
public java.lang.String encryptPassword (java.lang.String username, java.lang.String password)
    Encrypt Password with custom methodology

verifyPassword
public java.lang.Boolean verifyPassword (org.joget.directory.model.User user, java.lang.String password)
    Verify Password with custom methodology.

passwordPolicies
public java.util.Collection<java.lang.String> passwordPolicies ()
    To get a set of password policies to display in user profile form.

validatePassword
public java.util.Collection<java.lang.String> validatePassword (java.lang.String username, java.lang.String oldPassword, java.lang.String newPassword, java.lang.String confirmPassword)
    To validate password format and validity.

Return Collection of error message String.

validateUserOnInsert
public java.util.Collection<java.lang.String> validateUserOnInsert(org.joget.directory.model.User user)
    To validate user before insert to database

Return Collection of error message String.

validateUserOnUpdate
public java.util.Collection<java.lang.String> validateUserOnUpdate(org.joget.directory.model.User user)
    To validate user before updating

Return Collection of error message String.

validateUserOnProfileUpdate
```

```
public java.util.Collection<java.lang.String> validateUserOnProfileUpdate(org.joget.directory.model.User user)

    To validate user before updating profile

    Return Collection of error message String.

insertUserPostProcessing

public void insertUserPostProcessing(org.joget.directory.model.User user)

    Processing after a user is added.

updateUserPostProcessing

public void updateUserPostProcessing(org.joget.directory.model.User user)

    Processing after a user is modified.

updateUserProfilePostProcessing

public void updateUserProfilePostProcessing(org.joget.directory.model.User user)

    Processing after a user profile is updated.

passwordResetPostProcessing

public void passwordResetPostProcessing(org.joget.directory.model.User user)

    Processing after a user password is reset.

deleteUserPostProcessing

public void deleteUserPostProcessing(java.lang.String username)

    Processing after a user is deleted.

getLoginFormFooter

public java.lang.String getLoginFormFooter()

    HTML to add below login form

getUserCreationFormFooter

public java.lang.String getUserCreationFormFooter()

    HTML to add below user creation form

getUserEditingFormFooter

public java.lang.String getUserEditingFormFooter(org.joget.directory.model.User user)

    HTML to add below user editing form

getUserProfileFooter

public java.lang.String getUserProfileFooter(org.joget.directory.model.User user)

    HTML to add below user profile form

getUserDetailsButtons

public java.lang.String getUserDetailsButtons(org.joget.directory.model.User user)

    HTML to extend user details page button

loginPreProcessing

public void loginPreProcessing(org.joget.directory.model.User user, java.lang.String password)

    Processing before user login authentication

loginPostProcessing

public void loginPostProcessing(org.joget.directory.model.User user, java.lang.String password, java.lang.Boolean loggedIn)

    Processing after user login authentication.
```

```
requestPostProcessing

public void requestPostProcessing( )

    Processing after HTTP Request Completed.

isDataExist

public boolean isDataExist(java.lang.String username)

    Check whether a custom security data is exist for a user.
```

## Plugin Properties Options

- Please refer to [Plugin Properties Options](#) for more information.

## Tutorials

- [Guideline for developing a plugin](#)

## Related Community Plugins

- Not Available