Novell Access Manager LDAP Group Data Element Readme

Policy extension examples include:

- LDAPGroupDataElement.java
- LDAPGroupDataElementFactory.java

Purpose

This example illustrates how a policy extension can use external data sources to obtain the information.

Functionality

This policy extension connects to the required LDAP repository, runs a search on it, and returns the results. An Identity Injection policy is created in this example that uses this policy extension.

Implementation Details

- The policy extension used in this example is of type *Data* and contains the following classes:

  LDAPGroupDataElementFactory.java: Implements the com.novell.nxpe.NxpeContextDataElementFactory interface. This is a factory that creates LDAPGroupDataElement objects.

  LDAPGroupDataElement.java: Implements the com.novell.nxpe.NxpeContextDataElement interface.

- This class needs the following configuration parameters:
  - Parameters required for LDAP connections (Provider_URL, Security principal, Security credentials)
  - Parameters required for LDAP search (Search context and Search filter (LDAP_User_DN))
  - Parameter for enabling Debug statements (debug)
- The *getValue* method in the NxpeContextDataElement interface is called by the policy engine when a request triggers a policy evaluation. It executes the logic present in the policy extension and returns the results.
- The NxpeInformationContext object is used to retrieve the value of configuration parameter in LDAPGroupDataElement as in the getSecurityPrincipal, *getLDAPUserDN*, getSearchContext methods.
- For a secure LDAP connection, you need to import the certificate of the external LDAP repository in a keystore, which is present at the Access Manager component that evaluates the policy. For this example, certificate can be imported in the “cacert” keystore present under the following location in the Access Gateway (because Identity Injection policies are evaluated at Access Gateway).

Location: /opt/novell/jdk1.6.0_30/jre/lib/security
If you want to use any other keystore, then point that keystore in the LDAP connection code for authentication.

For further information on connecting to external data sources, see Retrieving Information from the Identity Server User Store in the NetIQ Access Manager 3.2 Developer Kit.

- For more details on the basics of policy extension and its implementation, see NetIQ Access Manager 3.2 Developer Kit.

Installation

Before you start the installation, you need the following:

- The following Java classes and nxpe.jar:

  LDAPGroupDataElement.java
  LDAPGroupDataElementFactory.java

  Download novell-nacm3_2.tar.gz (SDK tar) from http://www.novell.com/developer/ndk/novell_access_manager_developer_tools_and_examples.html.

  For information on how to obtain nxpe.jar, see section 4.1.1 Prerequisites in the NetIQ Access Manager Developer Kit 3.2.

- Java SDK (jdk1.6) to compile the Java sources.
- Apache Ant. You can download it from http://ant.apache.org/bindownload.cgi.
- An Access Manager setup with the Identity Server, Access Gateway, and policies.
- Knowledge of Java programming.

Setup

1. Extract the SDK tar (novell-nacm3_2.tar.gz). Go to nacm-3_2_0 > samples > PolicyExtension > LDAPGroupDataElement_Example and run build.xml.

   This will generate PolicyExtensions.jar in the same location where build.xml is available. PolicyExtensions.jar will be present at this location. This jar contains all the policy extension example's compiled classes. This jar can be used for this example.
   If you want to customize this example before installation then modify its java source, compile, and generate a Jar file.

   To run build.xml:

   You need to copy nxpe.jar in the nacm-3_2 > samples > PolicyExtension > nxpe folder before running build.xml.
   Note the location where Java and Ant are installed on your system. Set them in the Path environment variable and run the ant dist command. For example, run the following commands in the Linux environment:

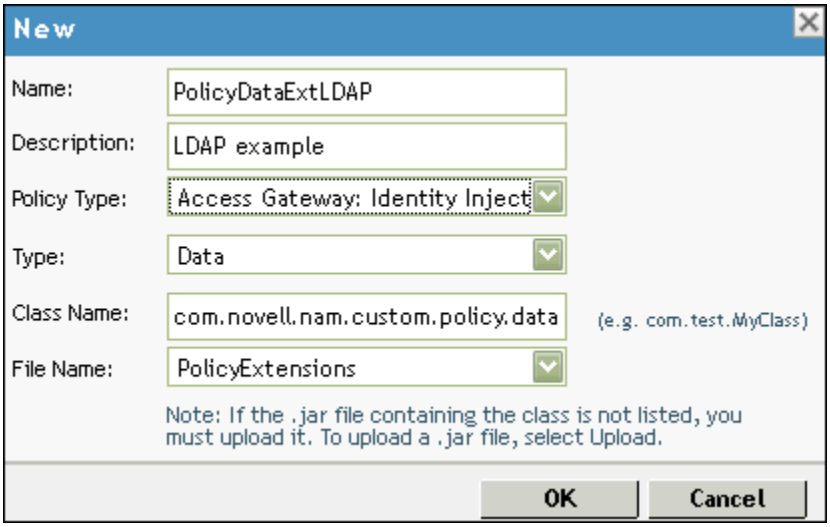
   - export ANT_HOME=/usr/apache-ant-1.8.1<set it as per your environment>

- export JAVA_HOME=/usr/java/jdk1.6.0_27<set it as per your environment>
- export PATH=$ANT_HOME/bin:$JAVA_HOME/bin:$PATH
- ant all

2. Create a policy extension of the type *Access Gateway: Identity Injection*. For steps, see Installing the Extension on the Administration Console in the NetIQ Access Manager 3.2 Policy Guide.

   2.1. Creating a new policy extension:

   - Name: PolicyDataExtLDAP
   - Policy Type: Access Gateway: Identity Injection
   - Class Name: com.novell.nam.custom.policy.data.LDAPGroupDataElementFactory
   - File Name: name of the jar file created in step 1



   2.2. Policy extensions configuration parameters: Configuration parameters are sent to the policy extension for execution.

   a) Name: LDAP_User_DN (Name can be anything)

      ID: 41 (This must match the parameter ID as mentioned in the policy extension implementation in the code)

      Corresponding extract from LDAPGroupDataElement.java:

      private static final String LDAP_USER_DN_NAME = "LDAP User DN";

      private static final int EV_LDAP_USER_DN = 41;

      This parameter is mapped to LDAP User DN of the user present in the credential profile. This parameter is used to build a filter for LDAP search in the code.

   b) Name: Security_Principal

ID: 51 (This must match the parameter ID as mentioned in the policy extension implementation in the code)
Corresponding extract from LDAPGroupDataElement.java:

private static final String SECURITY_PRINCIPAL_NAME = "Security Principal"

private static final int EV_SECURITY_PRINCIPAL = 51;

This parameter is mapped to the user's LDAP User Name present in the credential profile. This parameter is used in the code for setting the “SECURITY_PRINCIPAL” attribute (identity of the user) required for establishing the LDAP context.

c) Name: Security_Credentials

ID: 52 (This must match the parameter ID as mentioned in the policy extension implementation in the code)

Corresponding extract from LDAPGroupDataElement.java:

private static final String SECURITY_CREDENTIALS_NAME = "Security Credentials";

private static final int EV_SECURITY_CREDENTIALS = 52;
This parameter is mapped to the user's LDAP password present in the credential profile. This will be used in the code for setting the “SECURITY_CREDENTIALS” attribute for establishing the LDAP context.

d) Name: Debug

ID: 91 (This must match the parameter ID as mentioned in the policy extension implementation in the code)

Corresponding extract from LDAPGroupDataElement.java:

private static final String DEBUG_NAME = "Debug";
This parameter is set to “True” to enable debug statements.

e) Name: Search_Context

ID: 61 (This must match the parameter ID as mentioned in the policy extension implementation in the code)

Corresponding extract from LDAPGroupDataElement.java:

private static final String SEARCH_CONTEXT_NAME = "Search Context";

private static final int EV_SEARCH_CONTEXT = 61;

This parameter is used to set the Search context (name of the context or object to search) in the LDAP search.

f) Name: Provider_URL

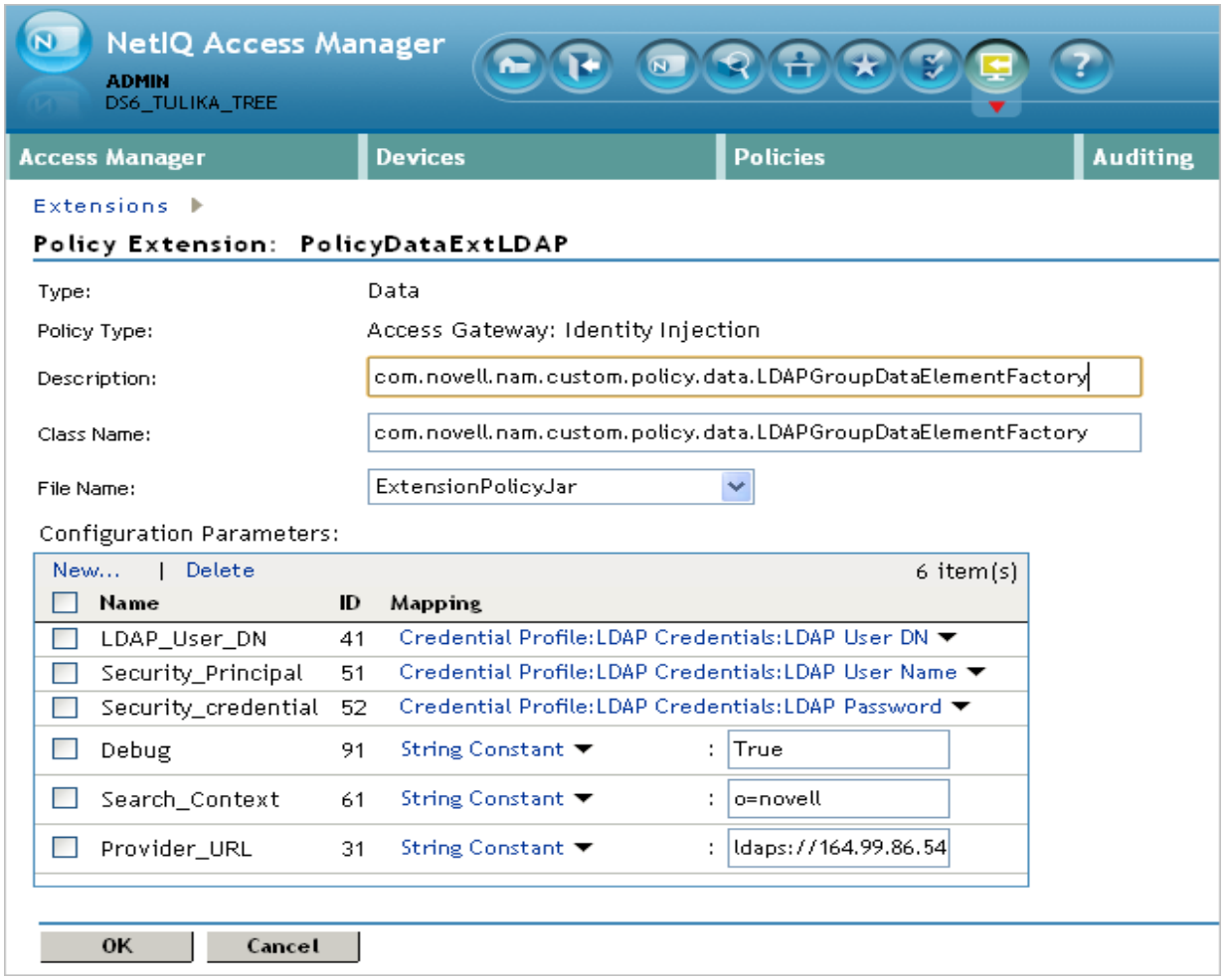
ID: 31 (This must match the parameter ID as mentioned in the policy extension implementation in the code)

Corresponding extract from LDAPGroupDataElement.java:

private static final String PROVIDER_URL_NAME = "User Store Replica";

private static final int EV_PROVIDER_URL = 31;

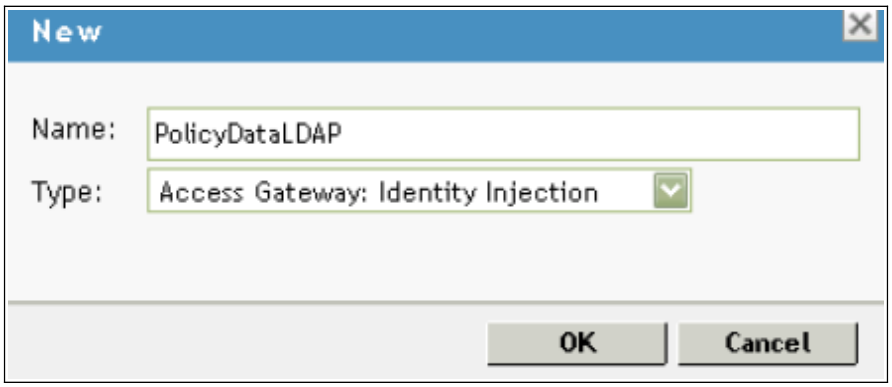
This parameter is used to set the Provider URL for establishing the LDAP context.



3. Distribute the policy extension.
   For steps, see “Distributing Policy Extension”. Create an identity injection policy from the data extension, assign the policy to the Access Gateway and distribute the policy extension created in step 2.

   The “PolicyDataLDAP” Identity injection policy created in this step will be assigned to a protected resource. For more information, see Assigning an Identity Injection Policy to a Protected Resource. It will inject the output of “PolicyDataExtLDAP” in the HTTP header of the request sent to the protected resource.

   New “Access Gateway : Identity Injection ” policy



Rules defined for this policy

"Inject into Custom Header" Action:

- Custom Header Name: LDAP Search Result (Name can be anything)
- Value of the Custom Header: This points to the PolicyDataExtLDAP, which is a policy data extension created in step 2.