Novell DirXML® Driver for Remedy ARS*
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IMPLEMENTATION GUIDE

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About This Guide

The DirXML® Driver for Remedy ARS provides a solution for synchronizing data between Novell® eDirectory™ and ARS databases.

This guide provides an overview of the driver's technology as well as configuration instructions.

Additional Documentation

For documentation on using Identity Manager and the other drivers, see the Identity Manager Documentation Web site (http://www.novell.com/documentation/dirxml20/index.html).

Documentation Updates

For the most recent version of this document, see the Identity Manager Documentation Web site (http://www.novell.com/documentation/dirxmldrivers).

Documentation Conventions

In this documentation, a greater-than symbol (>) is used to separate actions within a step and items within a cross-reference path.

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User Comments

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1 Introducing the DirXML Driver for Remedy ARS

Overview

The Remedy Action Request System (ARS) is a platform and development environment for automating Service Management business processes.

Nsure Identity Manager Driver 1.0 for Remedy ARS provides data integration between Novell® eDirectory™ and Remedy ARS.

The driver uses the Remedy Java* API to access Remedy objects and data. Preconfigured driver policies allow synchronization, creation, and management between eDirectory and Remedy ARS—for both users and groups.

For example, the driver can request new-employee data from eDirectory and then send the information to Remedy ARS, where an account and password are created automatically.

The driver can also synchronize other Remedy data to the directory.

The Driver for Remedy ARS

The driver consists of one file: ARSDriver.jar.

The driver needs the ARS API library to operate correctly. The ARS API library consists of two parts, the Java portion and the native portion. These files can be found in the AR System installation directory.

The Java files (arapi51.jar/arapi60.jar) must be copied to the /lib directory of the eDirectory server or the directory where the remote loader runs.

The native files (arapi51.dll, arjni51.dll, arrpc51.dll, and arutl51.dll or arapi60.dll, arjni60.dll, arrpc60.dll, and arutl60.dll) must be copied to the remote loader directory or to the \Novell\nds directory.

Database Concepts

The driver acceses Remedy ARS objects through the Java Remedy API.

On the Remedy system, the driver uses the DirXML Notifier filter setting for the Publisher Channel. By default, the filter publishes events from User and Group schemas. If you want to publish events from others schemas, you need to edit the database filter using the Remedy Administrator tool.

Data Synchronization

In the following scenarios, you can have one or more customer forms.

- **Subscriber Channel**

**Synchronization on
the Subscriber Channel**

ARS Database

Subscriber
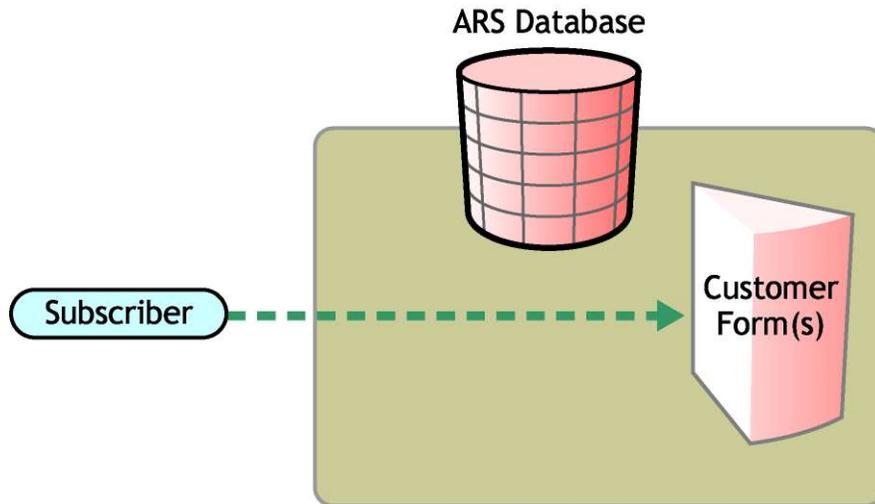
Customer
Form(s)

The subscriber updates tables directly in the ARS Server.

- **Publisher Channel**

When a customer table is updated, the publication filter inserts rows into the event log table. The publisher then reads the inserted rows and updates eDirectory. The publisher then deletes the processed rows in the event log table.

**Synchronization on
the Publisher Channel**

ARS Database

Publisher

Event
Log

Publication
Filter

Customer
Form(s)
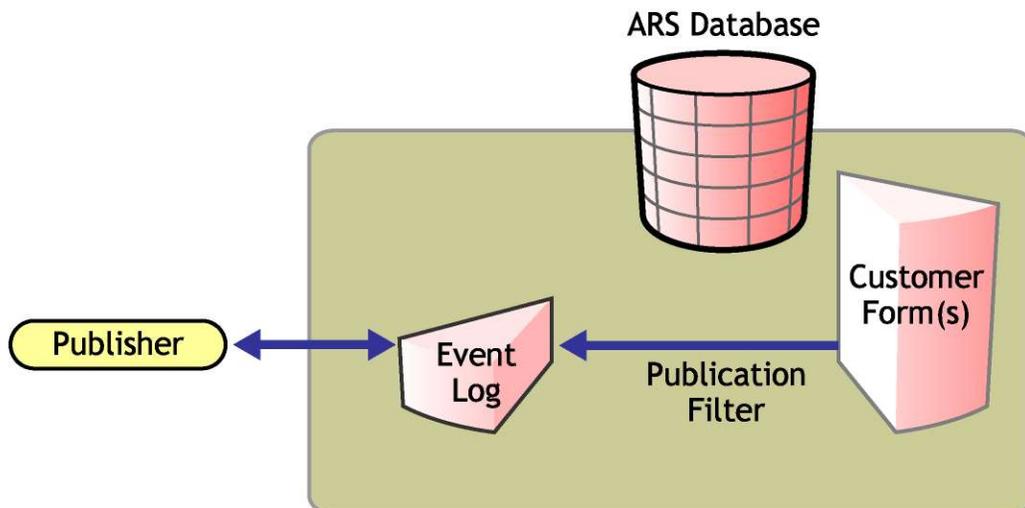
Associations

DirXML associations are built with the schema name and the Request ID of the entry for example, User/00000000001.

2 Driver Prerequisites

The driver for Remedy ARS requires the following:

- Novell® Nsure^{TM} Identity Manager 2
- Remedy ARS Server 5.0 or later

Supported Platforms

- Windows* NT*
- Windows 2000
- Windows 2003

Driver Limitations

- The driver currently supports only the Character, Date/Time, Integer, Drop-Down List and Radio Button fields. Referential attribute (Views, Tables, etc.) synchronization isn't supported.
- Password Synchronization is supported on Subscriber channel only.
- Move commands are not supported by this driver.

3 Installing the Driver

This chapter explains the following tasks:

- Planning the Installation
- Installing the Driver
- Importing the Driver Configuration
- Installing Database Objects
- Activating the Driver

Planning the Installation

Before you install and use the driver, you should determine which kind of installation you want to use: local or remote.

When to Use a Local Installation

A local installation installs the driver on the same host computer where you have the DirXML® engine (Identity Manager) installed.

When to Use a Remote Installation

A remote installation installs the driver on a different computer than the one where Identity Manager and eDirectory are installed. Remote installations can use SSL encryption to ensure data privacy between the driver and the DirXML engine. You should use this configuration when it is not possible or desirable to run the driver on the same host with eDirectory and Identity Manager.

Note: If you select a remote installation, the Remote Loader must run on a Windows computer.

Installing the Driver

1. From the Remedy system, copy arapi51.jar (or arapi60.jar) to the NOVELL\NDS\LIB directory for a local installation.

    For a remote installation, this file should be copied to novell\remoteloader\lib.

2. Run the Remedy Driver Installer.exe to begin the product installation.

3. Select the product components you want to install:

    - Remedy Driver: Installs the Remedy driver.

Novell eDirectory must be installed before you can install this option.

- Remedy Driver for Connected System: Installs the Remedy ARS driver for Remote Loader.
- Remedy Driver Policy: Installs the Remedy driver configuration.

If Novell iManager is not present, the installer will prompt for an installation directory.

Depending on your system configuration, you might need to run the installation program several times to install components on the various systems.

4. (Optional) Restart eDirectory if prompted for a shutdown during the installation.

5. Start iManager.

Configuring the Driver

As you import the driver configuration file, you will be prompted for the following information.

Parameter Name	Parameter Description
Driver Name	The actual name you want to use for the driver.
Authentication ID	The login name to be used on the ARS Server.
Authentication Password	The User password this driver uses for the ARS Server logon.
Authentication Context	The hostname or IP address for connecting to the appropriate ARS Server.
Polling Interval	How often the driver polls for unprocessed events in ARS Server.
eDirectory Base Container	The name of the Organization object under which ARS objects will be created.
Remote/Local	Configure the driver for use with the Remote Loader service by selecting the Remote option, or select Local to configure the driver for local use. If Local is selected, you can skip the remaining parameters.
Remote Hostname and Port	Specify the host Name or IP address and port number for the location where the Remote Loader service has been installed and is running for this driver. The default port is 8090.
Driver Password	The driver object password is used by the Remote Loader to authenticate itself to the DirXML server. It must be the same password that is specified as the driver object password on the DirXML Remote Loader.

Parameter Name	Parameter Description
Remote Password	The Remote Loader password is used to control access to the Remote Loader instance. It must be the same password that is specified as the Remote Loader password on the DirXML Remote Loader.

Importing the Driver Configuration

The driver configuration (XML) file creates and configures the objects needed in order for the driver to work properly. It also includes sample rules and style sheets you can modify for your implementation.

1. In iManager, select DirXML Management > Create Driver.

2. Select a driver set.

3. Select Import a Driver Configuration from the Server, then select the RemedyARS.xml file.

   The driver configuration file is installed on the Web server when you set up iManager.

4. When prompted to enter a name for the driver, enter the driver's name and click Next to continue.

5. (Optional) Click Define Security Equivalences.

   1. Click Add, then select an object with Admin rights (or any other rights that you want the driver to have).

   2. Click Apply, then click ok.

6. (Optional) Click Exclude Administrative Roles to exclude objects from replication.

   1. Click Add, then select any users you want to exclude (such as the admin user).

   2. Click Apply, then click ok.

7. Click Next to view the import summary, then verify that the configuration is correct.

8. Click Finish with Overview.

The necessary Identity Manager objects have now been created. If you didn't define security equivalences or exclude administrative users during the import, you can complete these tasks by modifying the driver object's properties.

Installing Database Objects

The following information explains how to install and configure database objects for synchronization with the default, driver configuration.

1. Launch AR System User.

2. Create a user with the name **dirxml** and a Fixed License Type, then make this User member of Admistrator Group.

   If you want a user with a name other than dirxml, you must use the Remedy Administration tool to modify the filter. From the Basic tab, change the name of the condition test in the DirXML Notifier ($USER$!='dirxml') field.

   You will also need to click the If Action tab, and modify the 'User Name' field to include the new username.

3. Launch AR System Administrator.

4. Select the ARS server.

5. Select Tools > Imports Definitions > From Definition File...

6. Locate the DirXML Notifier.xml file in the novell\nds directory and import the filter.

Activating the Driver

Activation must be completed within 90 days of installation or the driver will not run.

For activation information, refer to <u>Activating Novell Identity Management Products</u>.

4 Configuring the Driver

After you import the driver, you need to provide authentication information for the ARS Server.

Configuring Driver Authentication

1. In Novell iManager, click DirXML Management > Overview.

2. Locate the driver set containing the driver, then click the driver's icon.

3. At the DirXML Driver Overview, click the driver object, which will display the driver configurations.

   Refer to the individual driver implementation guides for more information about each driver's specific parameters.

4. Enter driver authentication information:

Parameter Name	Sample Configuration Value	Required Field
Authentication ID	dirxml	Yes
Authentication Context	REMEDY	Yes
Application Password	dirxml	Yes

Authentication ID

Authentication ID is the name of the driver's ARS Server user/login account. This user must exist and be granted login/session privileges on the ARS Server or a connection cannot be established. In addition, this user must have rights to select, insert, update, and delete in the synchronization schema tables or synchronization will fail.

Authentication Context

Authentication Context is the ARS Server network name (or address).

Example: REMEDY

If you are not using the RPC port mapper service, you have to specify the listening port of the ARS Server.

Example: REMEDY:1234

Application Password

This is the password for the ARS Server user/login account that is used by the driver. You must create a user/login account on the ARS Server and grant login/session privileges to this account or the driver will be unable to connect.

Setting Driver Parameters

After you have set the driver authentication parameters, you should set the driver's parameters.

Driver parameters are divided into three categories:

- Driver
- Subscriber
- Publisher

Configuring Driver Settings

1. In iManager, click DirXML Management > Overview.
2. Locate the driver set containing the driver, then click the driver's icon.
3. At the DirXML Driver Overview, click the driver object, which will display the driver configurations.

There is only one parameter for the driver.

Configuring Publisher Settings

- **Polling Interval**

Polling interval is an optional, case-insensitive parameter that specifies how often, in seconds, the publisher should poll the event log table for events. The default value is 600 seconds.

5 Advanced Driver Configuration

After installing a sample configuration, you will need to customize the driver for specialized use. This chapter contains important conceptual information, sample configurations, etc. to help you configure the driver.

Schema Mapping

The following table shows a high-level view of how the driver maps Novell® eDirectory™ objects to Database objects.

eDirectory Object	ARS Server Object
Tree	Schemas
Class	Table/Forms
Attribute	Field
Association	RequestID

Default Mapping

The default configuration allows synchronization of users and groups with their mandatory attributes.

Attribute mapping for Group objects:

eDirectory Name	ARS Name
CN	Group Name
Full Name	Long Group Name
Description	Comments
GID	Group ID
creatorsName	Creator

Group ID is a mandatory attribute in ARS, so you must add this attribute to the newly Groups created, or the add events will be filtered out.

Attribute mapping for User objects:

eDirectory Name	ARS Name
CN	Login Name
Group Membership	Group List
Internet Email Address	Email Address
creatorsName	Creator
Surname	Full Name(*)
Given Name	Full Name(*)

(*) not in the mapping rule

User's ARS Full Name attribute is build from the eDirectory Given Name and Surname attributes. For example:

In eDirectory: Given Name=Nicolas and Surname=McDonald

In ARS: Full Name=Nicolas McDonald

Of course, this works both ways. This is done by the Full Name builder policy on the Subscriber Channel, and by the Surname builder and Given Name builder policies on the Publisher Channel.

On the Subscriber Channel, the Full Name attribute is parsed to find the Surname and Given Name.

The Surname is built with whatever follows the first blank character (if anything.)

The Given Name is build with what preceeds the first blank character (if anything.)

Schema Mapping Extensions

This driver is designed to allow shema mapping extension.

New eDirectory objects can be synchronized with a new ARS Table. After the mapping rule is updated for the new objects and attributes, you have to update the DirXML Notifier Filter on the ARS Server.

The DirXML Notifier Filter watches for events on a set of Table (by default, User and Group). Use the ARS Administration Tool to update the list of Forms.

Event Mapping

Add Events

Add events are mapped to one CREATE statement in the ARS Server.

Modify Events

Modify events are mapped to one SET statement in the ARS Server.

Delete Events

Delete events are mapped to one DELETE statement in the ARS Server.

Rename Events

Rename events are mapped to one SET statement in the ARS Server. Rename events are transformed into Modify events by the 'RenameHandlers' policies.

Move Events

Move events are No Operations or NOOPs. They are always mapped to zero statements.

The Event Log Table

The event log table is where publication events are stored. This section discusses the structure and limitations of this table.

This table is filled by the DirXML Notifier Filter. For each event, there are three pieces of data stored in the table.

* Whom is the event for?

  This is used to filter events, because this table can be used for other purposes. The publisher retrieves only events for the dirxml user. All events filled by the DirXML Notifier Filter are for the dirxml user.

* What caused the event?

  This describes the type of event. Possible values are CREATE, SET, MODIFY, and DELETE.

* Which Entry was the event performed on?

  This information is provided by the table's Name and the Entry's RequestID fields. This is used by the publisher to retrive the entry's attributes to build the event for DirXML.

The table is polled by the publisher, and each successfully sent event is deleted from the table. Because there is no way for the publisher to find which attributes have changed, it publishes the full entry definition for each event.

6 Using Remote Loader

Keep in mind the following items when setting up the Remote Loader:
- The driver is a Java driver
- The class name is be.opns.dirxml.driver.ars.arsremedydrivershim.ARSDriverShim

Follow the instructions in "Using the Remote Loader Service" in the *Nsure Identity Manager Administration Guide* (http://www.novell.com/documentation/dirxml20/admin/data/ac6qgdi.html#ac6qgdi).

7 Troubleshooting

This chapter identifies common error messages and the possible causes.

- **No authentication information**

  No login/password/server was supplied to the driver. Check the driver configuration in iManager. This is a fatal error, so the driver will shut down.

- **Unable to connect to ARS server**

  The driver didn't successfully log in. Check the driver authentication configuration (login name, password, and context) and Remedy native library.

- **No SchemaDef was found for xxxx**

  The driver tried to retrieve information for an unknown schema. Check that all classes in the Publisher and Subscriber Filter are mapped. This error should never occur except if a synchronized table was modified while the driver was running. Restart the driver to fix this.

- **Problem with native libraries**

  The driver can't access the Remedy libraries. Check that the Remedy library .dll files are in the system path (usually /winnt/system32). Refer to Chapter 3, "Installing the Driver."

- **No events published**

  Check that the DirXML Notifier is correctly installed on the ARS server.