

Application Note 329

Contributing a Configuration Database to DS-5

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Application Note 329

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Release information

Change history

Date	Issue	Change
August 2012	A	First release
October 2012	B	Removed broken install option from section 4

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1. Introduction

This Application Note describes how to add a default Configuration Database to DS-5. A Configuration Database describes target-specific information, such as how to connect and the register and peripherals that are made accessible within DS-5 Debugger. The intention is to enable third-party installers to add platform support to an already installed DS-5 installation.

A default Configuration Database can be added to DS-5 via an Eclipse extension point contributed from a plug-in. The extension point consists of a single Java interface, which provides an ordered list of Configuration Database paths when requested by DS-5. A provider is expected to implement the interface, produce the plug-in declaring the extension and add the plug-in to DS-5.

This Application Note is split into the following sections:

- **Configure a DS-5 development environment**
Describes how to set-up an Eclipse environment to build plug-ins depending on DS-5
- **Create the Configuration Database extension**
Describes how to create the provider extension and produce a plug-in
- **Add the Configuration Database extension to DS-5**
Describes how to install the provider plug-in into an existing DS-5 installation

Prerequisites

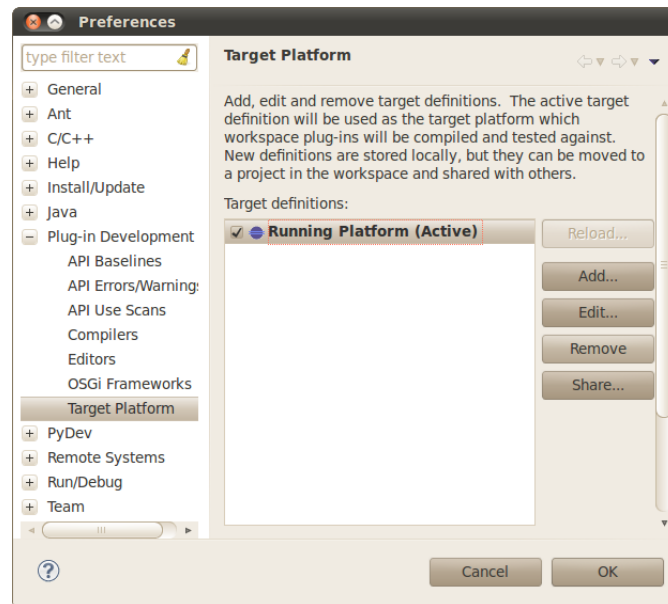
You must have:

- An Eclipse installation containing the Plug-in Development Environment (PDE)
- A DS-5 installation
- A Configuration Database

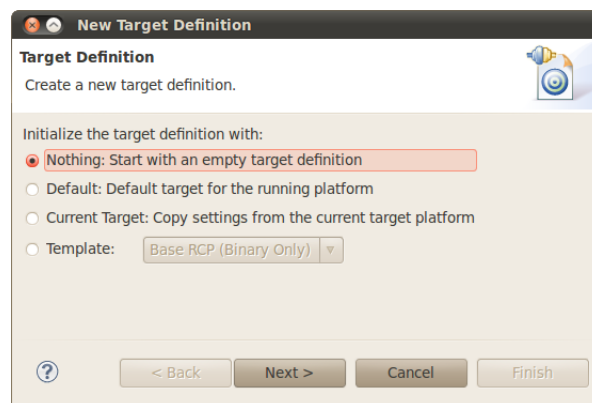
2. Configure a DS-5 development environment

The first task is to configure your development environment for building a plug-in that contributes to DS-5 by creating a PDE target definition. A target definition will ensure plug-in projects are built against the exact plug-in set that defines DS-5.

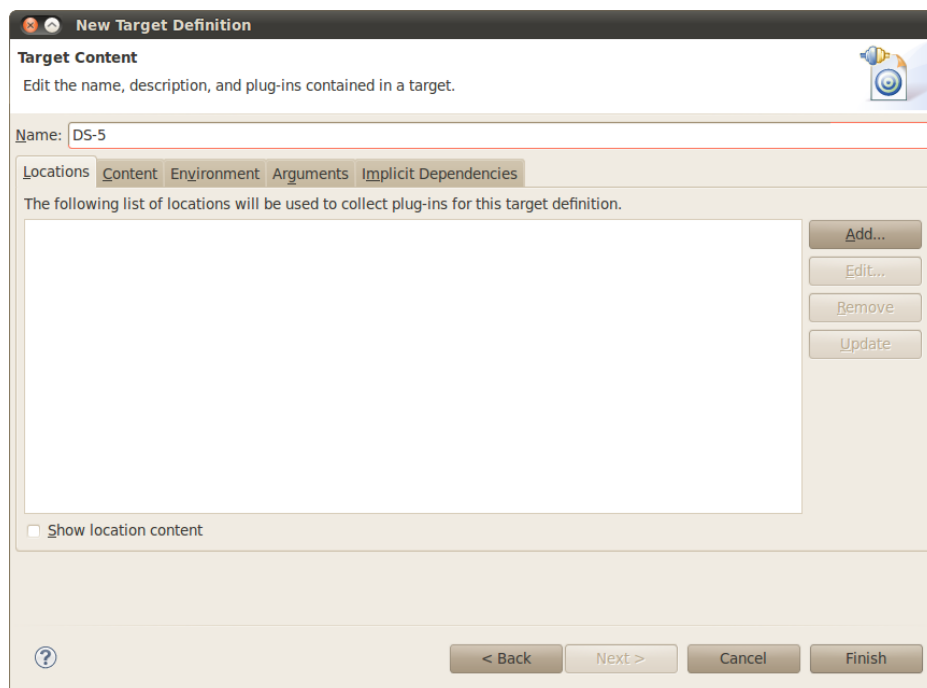
1. Start Eclipse and use a new workspace
2. Select **Window** → **Preferences**
3. Expand the **Plug-in Development** group and select **Target Platform**



4. Click **Add**
5. Select **Nothing: Start with an empty target definition**

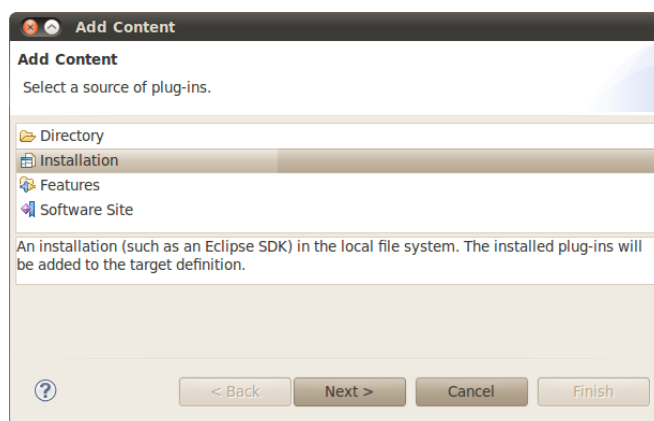


6. Click **Next**
7. Enter a name for the new definition

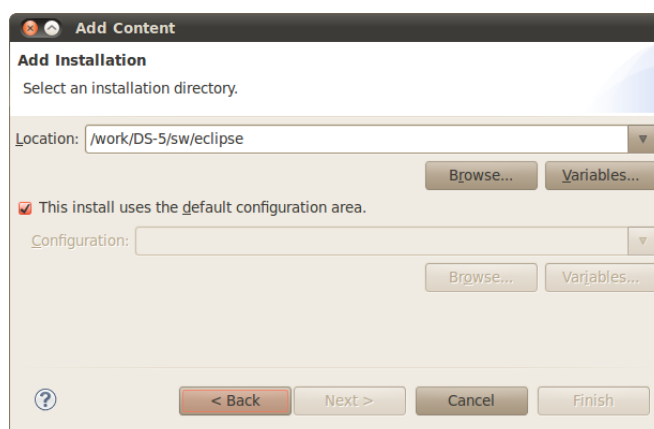


8. On the **Locations** tab, Click **Add**

9. Select **Installation** and click **Next**

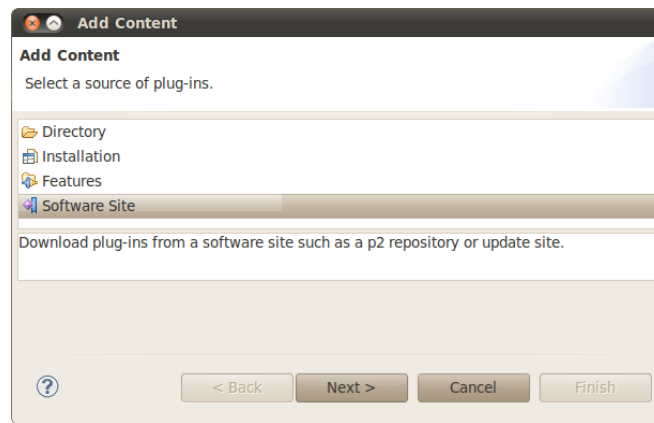


10. Click **Browse** and navigate to `sw/eclipse` relative to root of your DS-5 installation



11. Click **Finish**

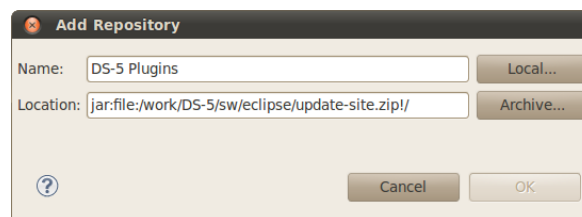
12. Click **Add** again



13. Select **Software Site** and click **Next**

14. Click **Add**

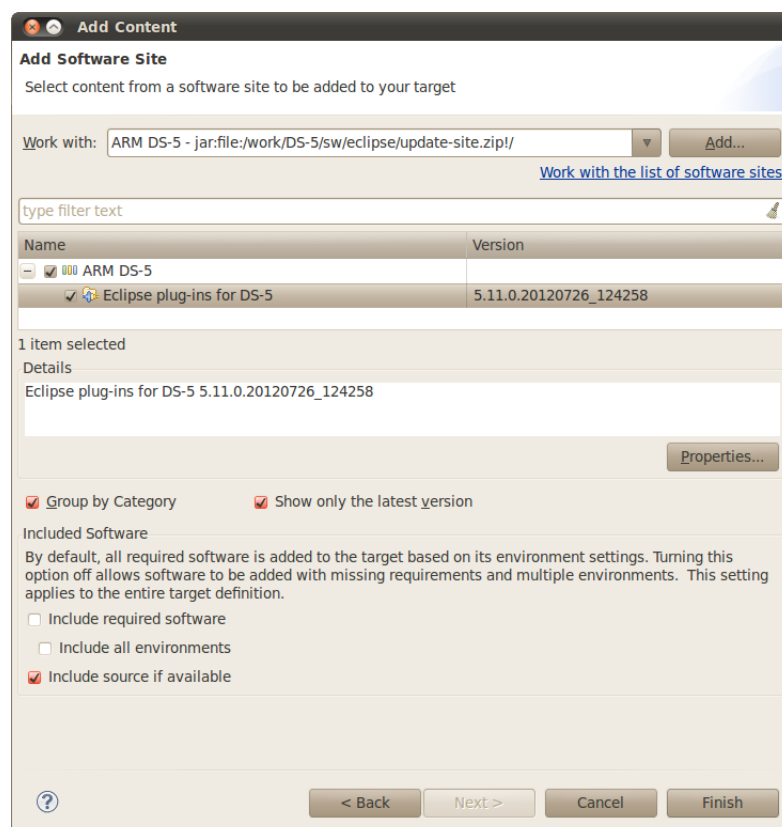
15. Click **Archive...** and navigate to `sw/eclipse/update-site.zip` relative to the root of your DS-5 installation



16. Give the Repository a name and click **OK**

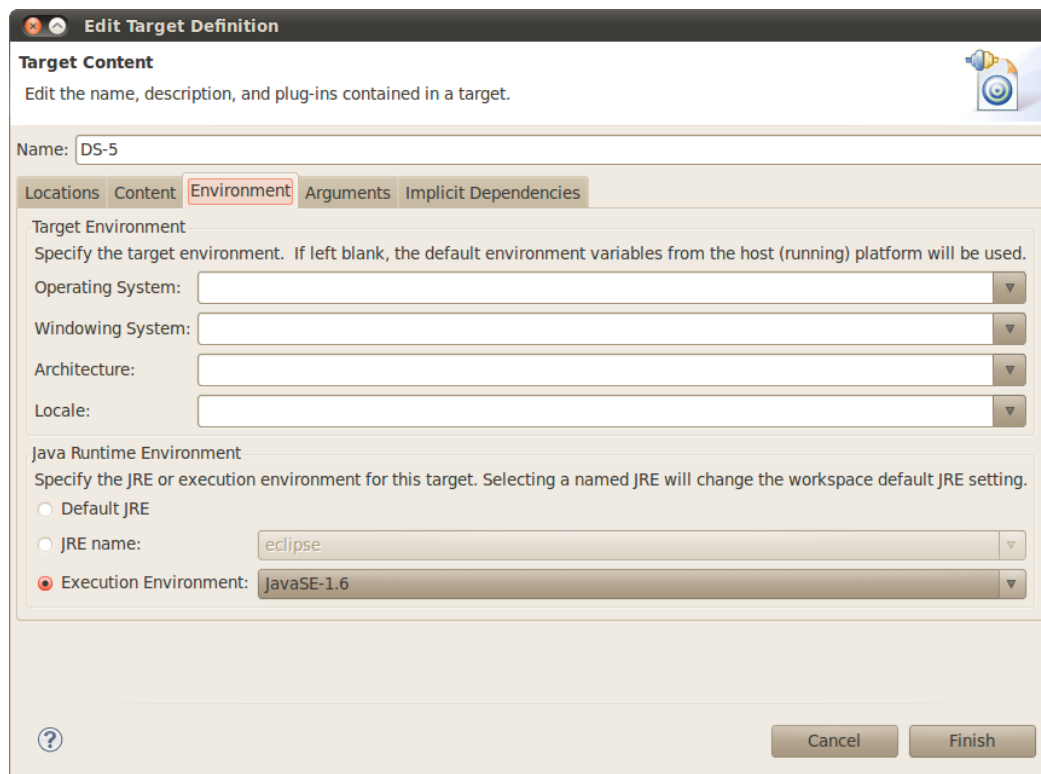
17. Select the **Eclipse plug-ins for DS-5** check box

18. Deselect the **Include required software** check box

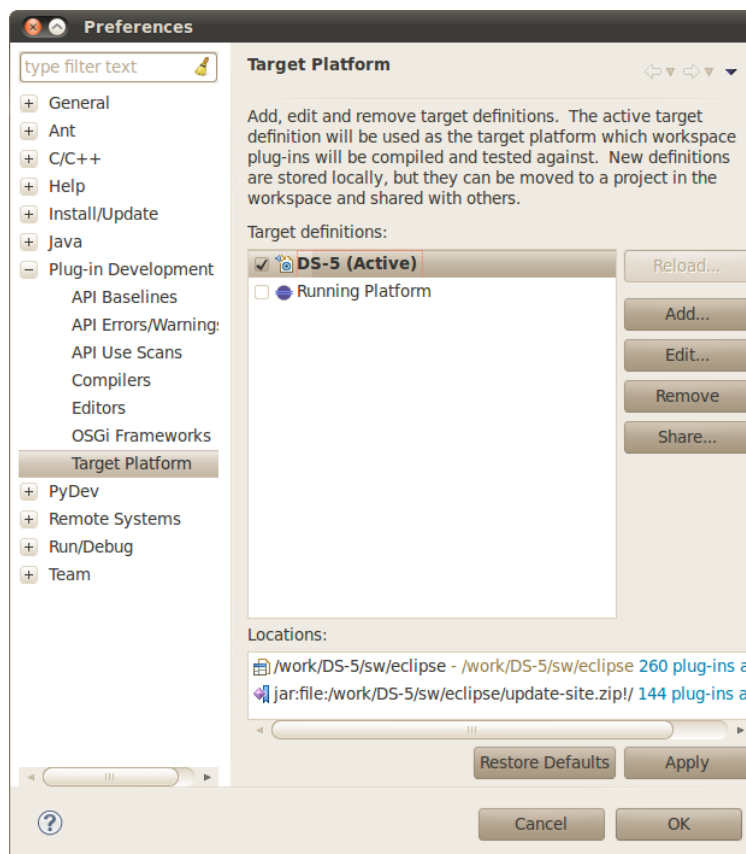


19. Click **Finish**

20. Select the **Environment** tab
21. Under **Java Runtime Environment**, select the **Execution Environment** check box and **JavaSE-1.6** from the drop down



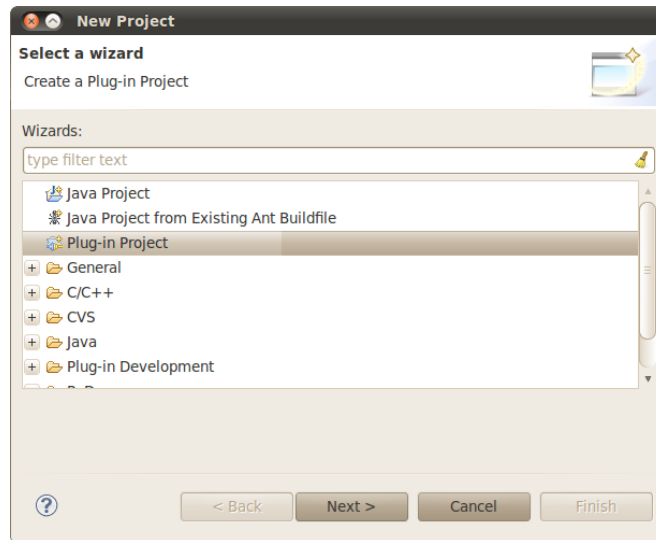
22. Click **Finish**
23. Select the check box of the new definition to make it active



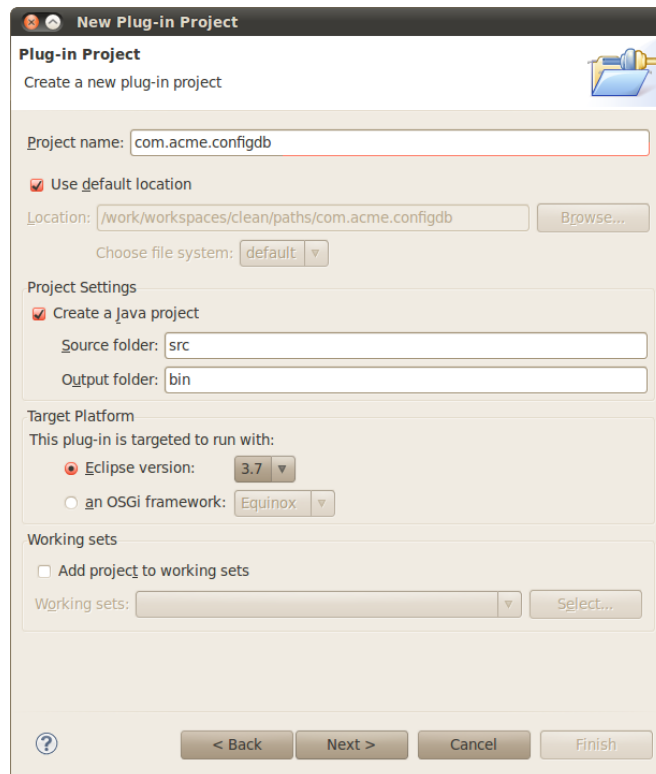
3. Create the Configuration Database extension

The second step is to create a new plug-in that implements the extension point for contributing Configuration Database paths.

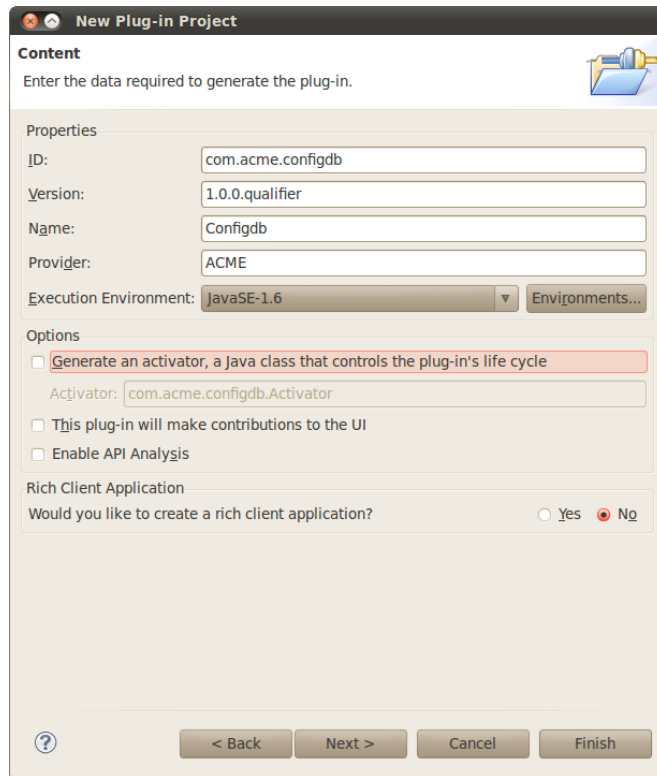
1. Create a new project
 - a) Select **File** → **New** → **Project**
 - b) Select **Plug-in Project** and click **Next**



- c) Give the project a name



- d) Click **Next**
 - e) Deselect the **Generate an activator...** and **This plug-in will make contributions to the UI** check boxes

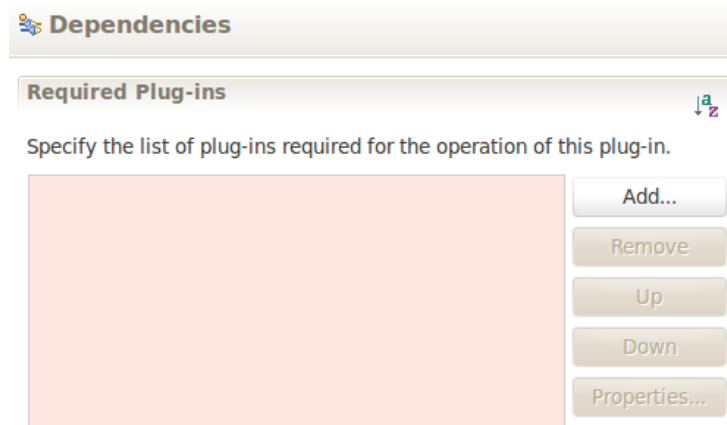


f) Click **Finish**

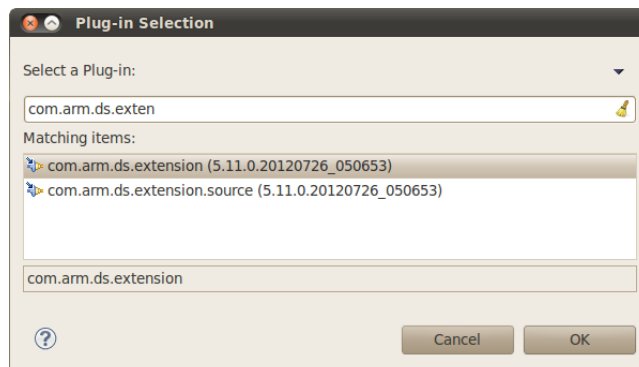
The plug-in editor should automatically open, if it does not, open the META-INF/MANIFEST.MF file from the newly created project.

2. Add the required plug-in dependencies

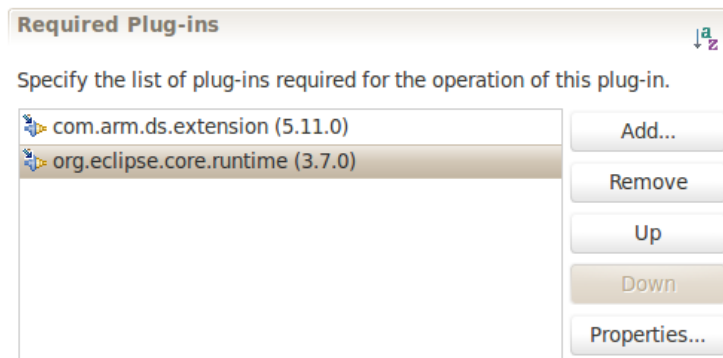
a) Click on the **Dependencies** tab



b) Click the **Add** button under **Required Plug-ins**

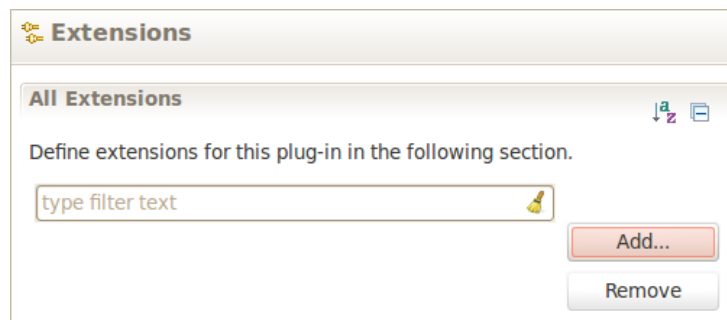


- c) Type **com.arm.ds.extension** into the text field and click **Ok**
- d) Click **Add** again
- e) Type **org.eclipse.core.runtime** into the text field and click **Ok**

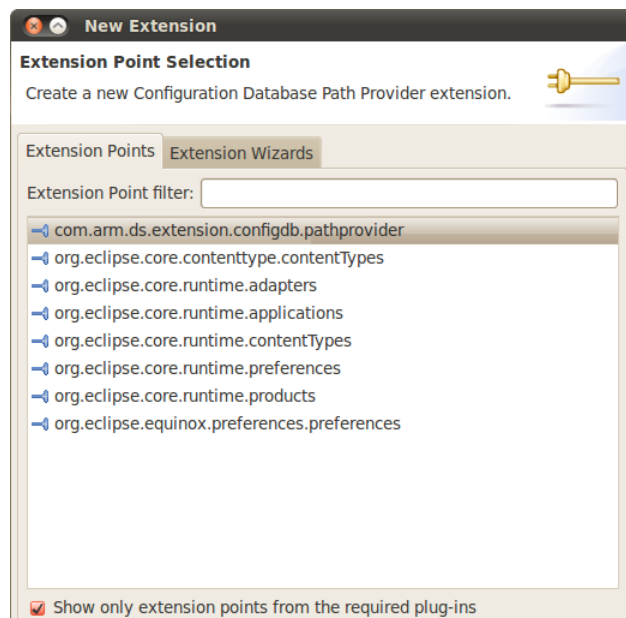


3. Declare the extension

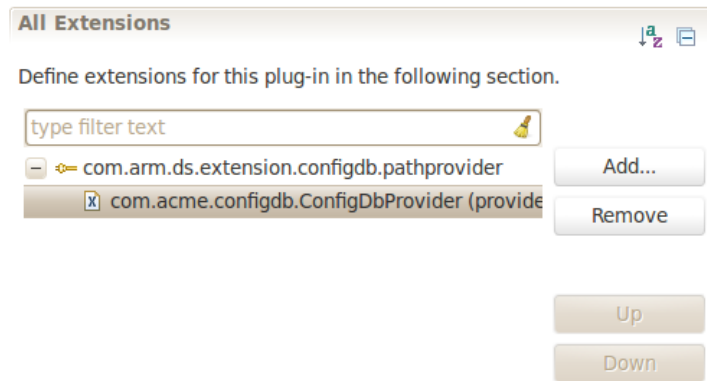
- a) Click on the **Extensions** tab



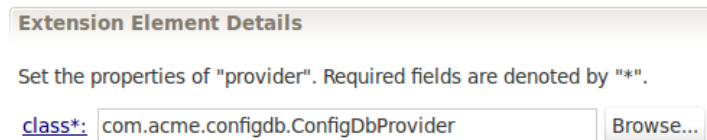
- b) Click **Add**



- c) Select **com.arm.ds.extension.configdb.pathprovider** from the list and click **Finish**
- d) Right-click on the **com.arm.ds.extension.configdb.pathprovider** entry and select **New** → **provider**



- e) Change the name of the **class** field to the name to be given to the provider implementation class



- f) Save the project
4. Implement the provider class
 - a) Click on the **class** link next to the provider class name, the **New Java Class** dialog will open with appropriate defaults



- b) Click **Finish**
- c) Complete the provider implementation to return the configuration database paths as required. Below is a simple example returning a hard-coded path.

```

package com.acme.configdb;

import java.util.Collections;

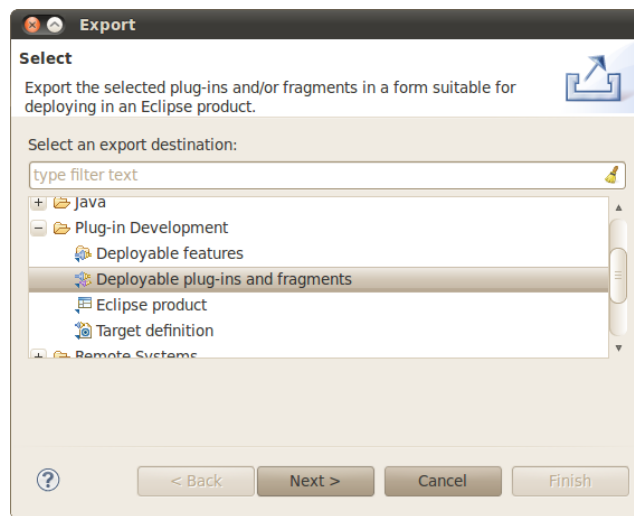
public class ConfigDbProvider implements IDatabasePathProvider {

    @Override
    public List<DatabasePath> getConfigurationDatabasePaths() {
        DatabasePath path = new DatabasePath(0,
            "Acme Configuration Database", Path.fromOSString("/work/configdb"));
        return Collections.singletonList(path);
    }
}

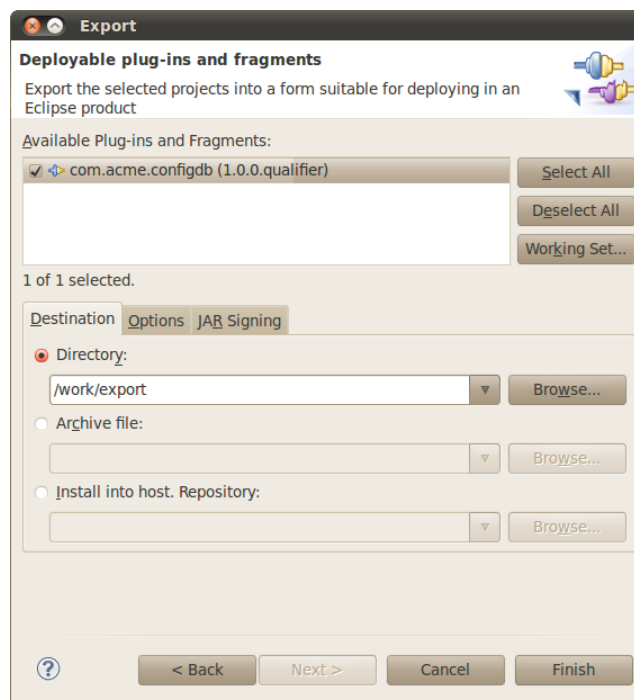
```

5. Export the plug-in

- a) In the **Package Explorer**, right-click on the project and select **Export**
- b) Open the **Plug-in Development** group, select **Deployable plug-ins and fragments** and Click **Next**



- c) Select a directory to export the plug-in in to



- d) Click **Finish**

4. Add the Configuration Database extension to DS-5

The final task is to add your Configuration Database extension to DS-5 by installing the plug-in into the existing installation.

There are several mechanisms available to install a plug-in into Eclipse, which one is most appropriate depends on the particular requirements of the provider.

- Watched directories

Eclipse supports watched directories where a plug-in can be placed to be automatically installed when Eclipse is started. DS-5 provides two such directories:

- Install for single user

The plug-in is placed in a user-specific configuration area, `~/.ds-5/workbench/dropins/plugins` (Linux) or `%APPDATA%/ARM/DS-5/workbench/dropins/plugins` (Windows), and is installed for that user only.

- Install for all users

The plug-in is placed in the main DS-5 configuration area, `<DS-5 Root>/sw/eclipse/dropins/plugins`, and will be available to all users.

There are two things to consider when installing plug-ins into the main DS-5 configuration area. Firstly, write permissions on the DS-5 installation are needed, which on Windows means Administrator rights are required to perform the install. Secondly, any files added to the DS-5 installation will not be removed if DS-5 is un-installed, it is the responsibility of the provider to manage the additional files.

- Eclipse p2 director application

The p2 director application allows plug-ins to be installed into Eclipse in the same manner as plug-ins from the **Software Updates** dialog.

```
<DS-5 Root>/bin/eclipse -application org.eclipse.equinox.p2.director -nosplash -
consolelog -repository file:///work/export -installIU com.acme.configdb
```

The above command would install the provider plug-in into the user-specific configuration area, as DS-5 uses a cascaded configuration by default. To perform the same install for all users and install into the main configuration area, add the following options to the end of the command line:

```
-vmargs -Dosgi.configuration.cascaded=false
```

The considerations regarding permissions and un-installation discussed for the watched directories also apply to the p2 director installation.

The steps below show a simple example of using the DS-5 dropins directory, write permission to this directory is assumed.

1. Drop the plug-in jar file from the export directory into the `sw/eclipse/dropins/plugins` directory relative to the root of your DS-5 installation.
2. Start **Eclipse for DS-5**
3. Select **Window** → **Preferences**
4. Open the **DS-5** group and select **Configuration Database**
5. The contributed Configuration Database will be visible in the **Default Configuration Databases** table

