



# Data Abstraction Best Practices Developer's Guide

**An Open Source Asset for use with  
TIBCO® Data Virtualization**

**TIBCO Software** empowers executives, developers, and business users with Fast Data solutions that make the right data available in real time for faster answers, better decisions, and smarter action. Over the past 15 years, thousands of businesses across the globe have relied on TIBCO technology to integrate their applications and ecosystems, analyze their data, and create real-time solutions. Learn how TIBCO turns data—big or small—into differentiation at [www.tibco.com](http://www.tibco.com).

<b>Project Name</b>	AS Assets Data Abstraction Best Practices
<b>Document Location</b>	This document is only valid on the day it was printed. The source of the document will be found in the ASAssets_DataAbstractionBestPractices folder ( <a href="https://github.com/TIBCOSoftware">https://github.com/TIBCOSoftware</a> )
<b>Purpose</b>	Developer's Guide



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## Revision History

Version	Date	Author	Comments
1.0	12/04/2017	Mike Tinius	Initial revision with Tibco
2018Q1	03/20/2018	Mike Tinius	Release 82018Q1 – no changes.
2019Q1	01/25/2019	Mike Tinius	Release 2019Q1 – no changes.
2019Q200	06/13/2019	Mike Tinius	Release 2019Q200 – no changes.
2019Q301	08/01/2019	Mike Tinius	Release 2019Q301 – no changes.

## Related Documents

Name	Version
How To Use Utilities.pdf	2019Q301

## Supported Versions

Name	Version
TIBCO® Data Virtualization	7.0 or later
AS Assets Utilities open source	2019Q301 or later

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# 1 Introduction

## Purpose

The purpose of this document is to provide guidance on how develop the AS Assets Data Abstraction Best Practices.

## Audience

This document is intended to provide guidance for the following users:

- Developers

## References

Product references are shown below. Any references to CIS or DV refer to the current TIBCO® Data Virtualization.

- TIBCO® Data Virtualization was formerly known as
  - Cisco Data Virtualization (DV)
  - Composite Information Server (CIS)

## 2 Github Repository Structure

### Recommended Development Tools

CIS itself can (and should) be used for developing the SQL Script procedures. Any robust Java IDE can be used to develop the CJP's, however up to this point, the CJP's have been developed using Eclipse. The CJP artifacts in the open source repository (GitHub) are therefore geared towards an Eclipse project.

Git is used as the version control system for the ASAssets open source project. For those new to Git, a visit to <https://help.github.com/articles/set-up-git> will provide an overview of Git and instructions on downloading and setting up the basic Git tools.

### How Can I Download a Copy of the Data Abstraction Best Practices GitHub Repository?

The GitHub master repository is located at [https://github.com/TIBCOSoftware/ASAssets\\_DataAbstractionBestPractices](https://github.com/TIBCOSoftware/ASAssets_DataAbstractionBestPractices).

### Repository Folder Structure

The folder structure of the GitHub repository contains CIS source, custom Java source, documentation source, and distribution resources.

#### DocumentationSource

This folder contains the source versions of the user's guide and developer's guide (this document) in Microsoft Word format. When a release version of a document is ready for distribution, it should be saved in PDF format and placed in the Release folder.

#### DVSource

This folder contains the source code for the DV resources.

#### DVSource/cis\_objects

This folder contains the exported CIS resources in the version control export format. Instead of a single .CAR file, the resources are exported in a folder tree structure that matches the container structure in CIS. A .CMF file named for the resource with a resource type suffix contains the resource's source code, model, ownership information, annotation, permissions, etc. A container will have a corresponding .CMF file contained inside it.

#### DVSource/scripts

This folder will contain (still in development) a number of Windows batch files and Linux shell scripts that can be used to import the resources in the cis\_objects folder into a CIS instance and export resources from a CIS instance into the cis\_objects folder structure.

**JavaSource**

This folder contains the source code for the DV resources. It contains an Eclipse project that can be used to build individual CJP data source jars or all of them in one build. Each CJP collection has a child folder here.

**JavaSource/lib**

This folder contains library jar files used to build the CJP jars. Open source libraries have corresponding LICENSE.txt files. CIS libraries are named with a "cs" prefix.

**Release**

This folder contains the current release of the project and corresponding documentation.

**Release/archive**

This folder contains past releases of the project and corresponding documentation.

### 3 Configure the Eclipse Development Environment

#### Checking Out the Data Abstraction Best Practices DV Source Code

TBD. For now, the best way to make sure a new or updated SQL Script gets into the next release is to send the script (plus documentation and examples!) in a CAR file to Mike Tinius.

#### Configure Eclipse Variables

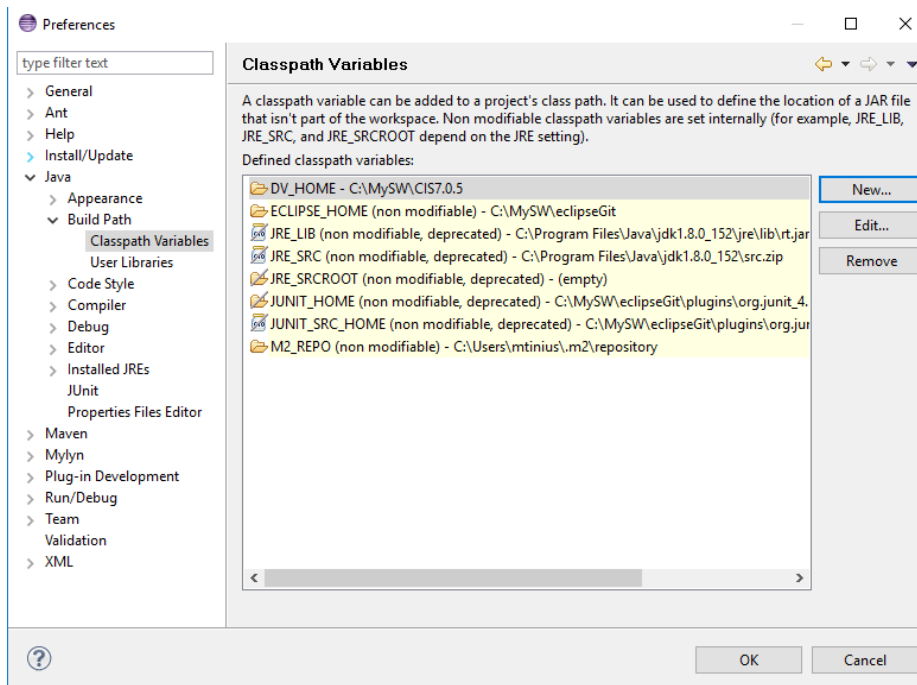
There are two variables that need to be created. One is for Eclipse and one is for Ant.

Create DV\_HOME for Eclipse.

In Eclipse, select Window > Preferences > Java > Build Path > Classpath Variables > New

Enter Name: DV\_HOME

Path: Browse to your data virtualization home folder

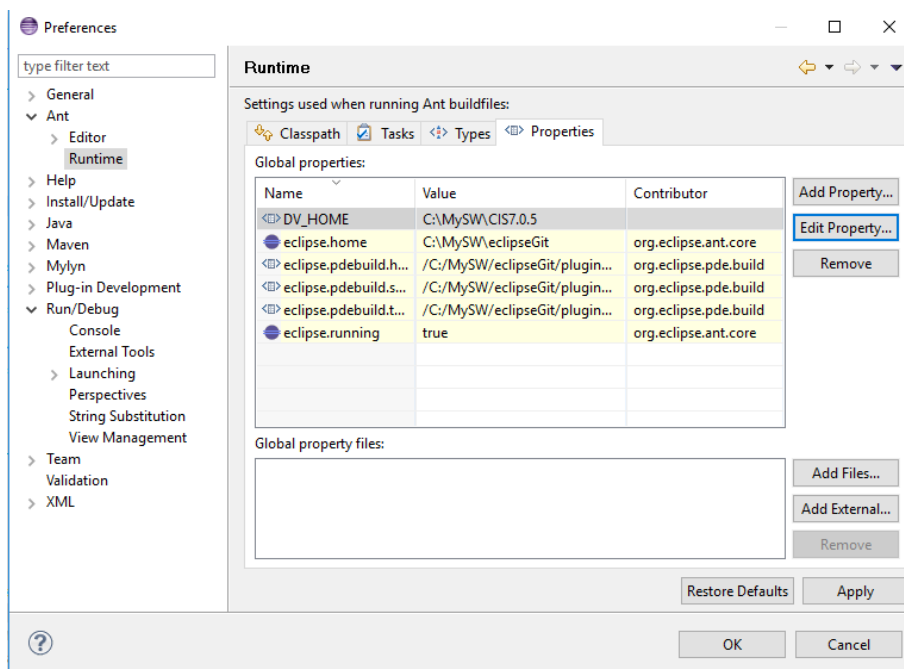
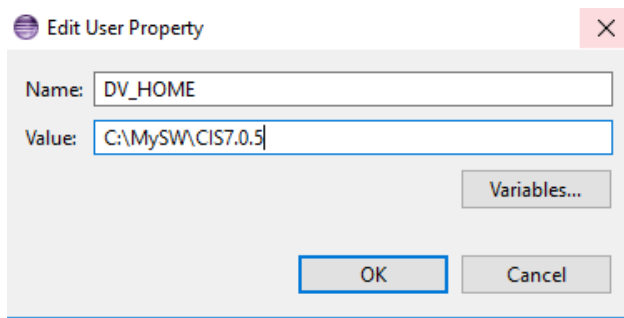


### Create DV\_HOME for Ant.

In Eclipse, select Window > Preferences > Ant > Runtime > Properties > Add Property

Enter Name: DV\_HOME

Path: Locate your data virtualization home folder and type it or copy and paste it.





## Checking Out the Data Abstraction Best Practices Project

CJPs for the AS Assets are currently developed in Eclipse. These instructions are based on the Luna distribution of Eclipse (if not using this release then the following steps may need to be modified. For instance, Luna includes the Git client, whereas earlier releases of Eclipse do not.) If installing Eclipse for the first time, the "Eclipse Standard" (or "Eclipse IDE for Java Developers", if space is tight) should be used.

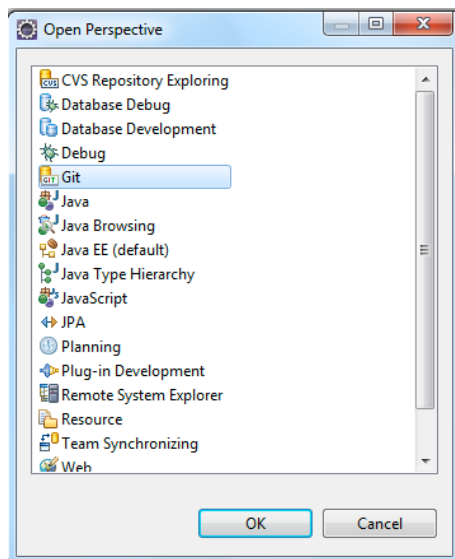
### Clone the AS Data Abstraction Best Practices Git repository to your local machine

For the next steps, start Eclipse and make sure to apply any updates (Help -> Check for Updates).

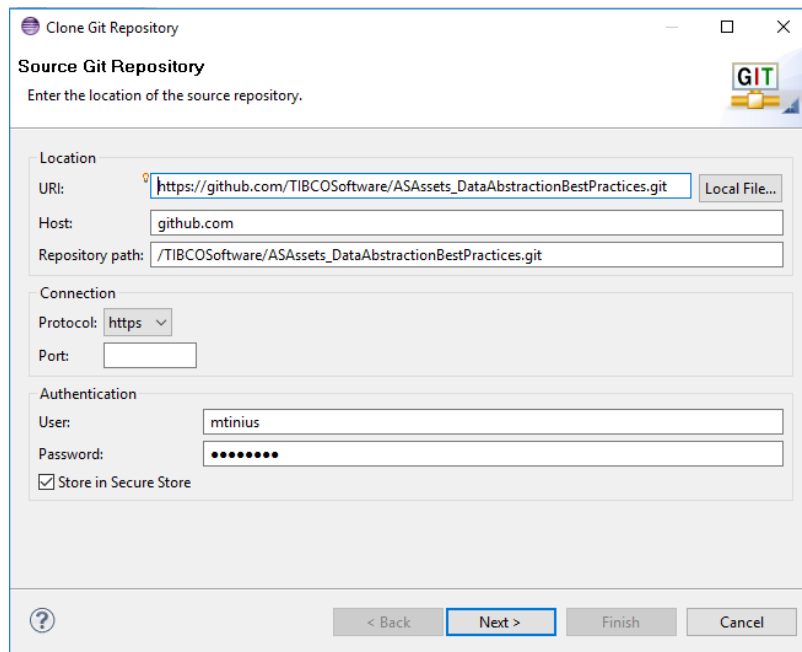
1. Open the Git perspective using the "Open Perspective" panel in the upper right of the Eclipse screen:



2. Choose the Git perspective:

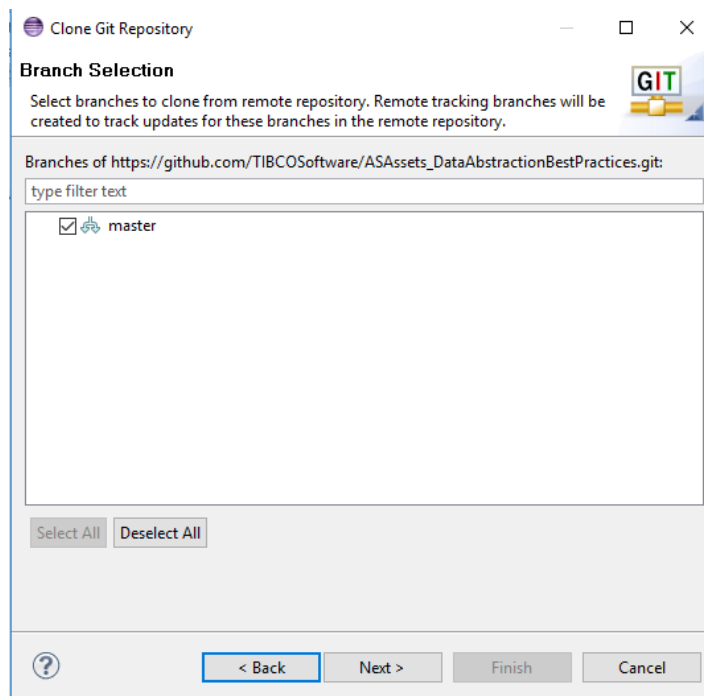


3. In the "Git Repositories" panel, click the "Clone a Git repository" link. Alternatively, go to the "File" menu and select "New" -> "Other..." Choose "Git" -> "Git Repository" from the resulting dialog.
4. In the resulting dialog, paste the Git repository URL **[https://github.com/TIBCOSoftware/ASAssets\\_DataAbstractionBestPractices.git](https://github.com/TIBCOSoftware/ASAssets_DataAbstractionBestPractices.git)** into the "URI" field. The "Host" and "Repository Path" fields should auto-populate. Enter your Git user name and password and click "Next >".



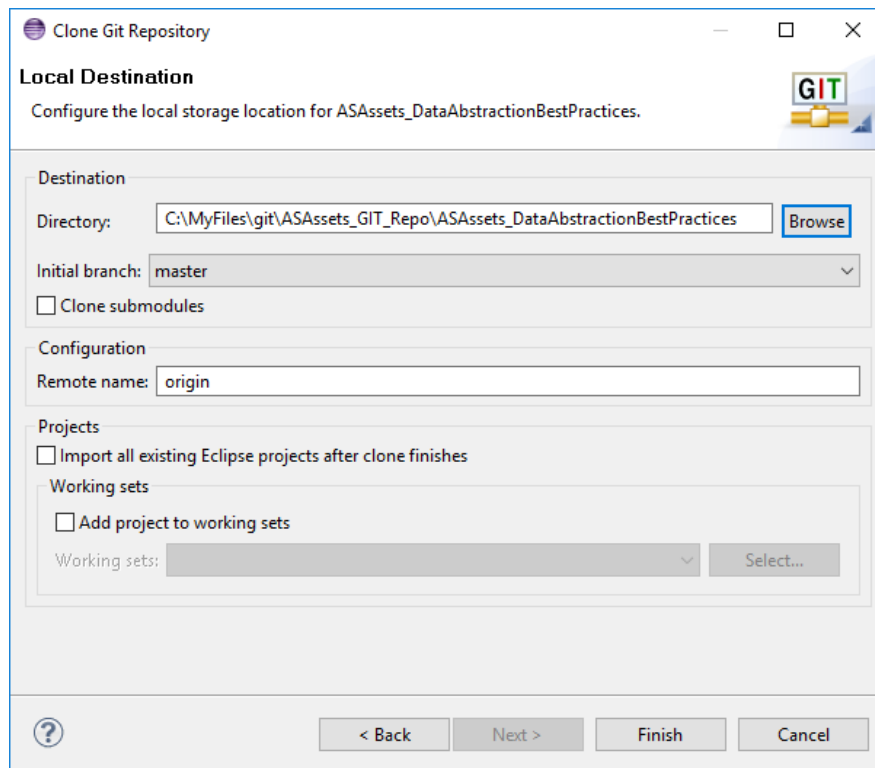
The "Clone Git Repository" dialog box is shown. It has a title bar with a question mark icon, a close button, and a maximize button. The main title is "Clone Git Repository" and the subtitle is "Source Git Repository". Below the subtitle is the instruction "Enter the location of the source repository." The dialog is divided into several sections: "Location" with fields for "URI:" (containing "https://github.com/TIBCOSoftware/ASAssets\_DataAbstractionBestPractices.git"), "Host:" (containing "github.com"), and "Repository path:" (containing "/TIBCOSoftware/ASAssets\_DataAbstractionBestPractices.git"); "Connection" with a "Protocol:" dropdown set to "https" and a "Port:" field; and "Authentication" with a "User:" field (containing "mtinius"), a "Password:" field (masked with dots), and a checked checkbox for "Store in Secure Store". At the bottom are buttons for "< Back", "Next >", "Finish", and "Cancel".

5. The "Branch Selection" screen should show one branch called "master". This should already be selected so click "Next >".

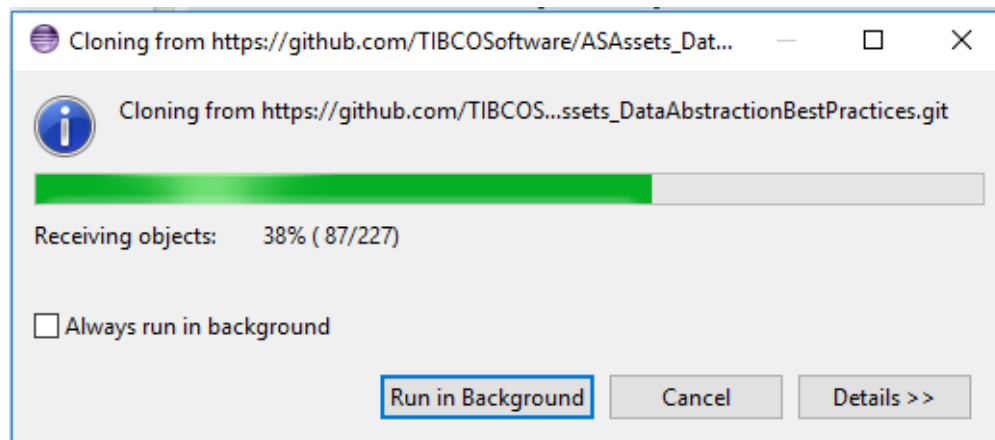


The "Branch Selection" dialog box is shown. It has a title bar with a question mark icon, a close button, and a maximize button. The main title is "Branch Selection" and the subtitle is "Select branches to clone from remote repository. Remote tracking branches will be created to track updates for these branches in the remote repository." Below the subtitle is the text "Branches of https://github.com/TIBCOSoftware/ASAssets\_DataAbstractionBestPractices.git:" followed by a search filter field labeled "type filter text". A list box contains one entry: a checked checkbox, a branch icon, and the text "master". At the bottom are buttons for "Select All", "Deselect All", "< Back", "Next >", "Finish", and "Cancel".

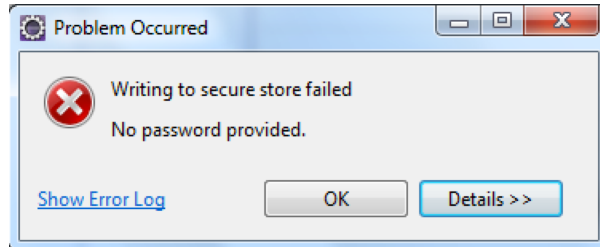
6. Choose the location where the downloaded source code should be stored. Click "Finish".



7. A progress dialog will appear indicating how far along the clone process is. Once done, the ASAssets\_DataAbstractionBestPractices clone should then appear in your Git Repositories list.

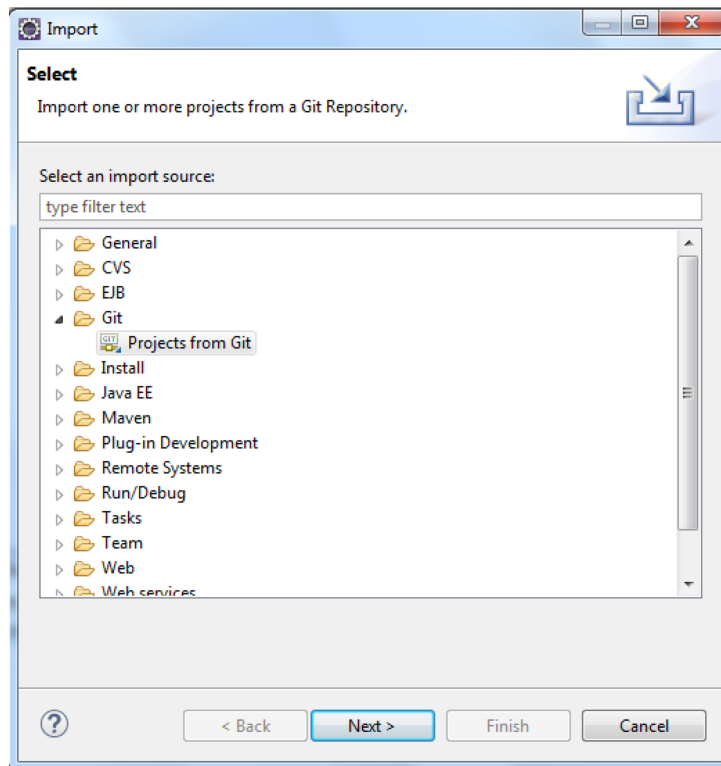


8. You may get an error stating that your secure store password has not been set. This can be safely ignored but it's probably a good idea to go into the Eclipse preferences and set a password for your secure storage.

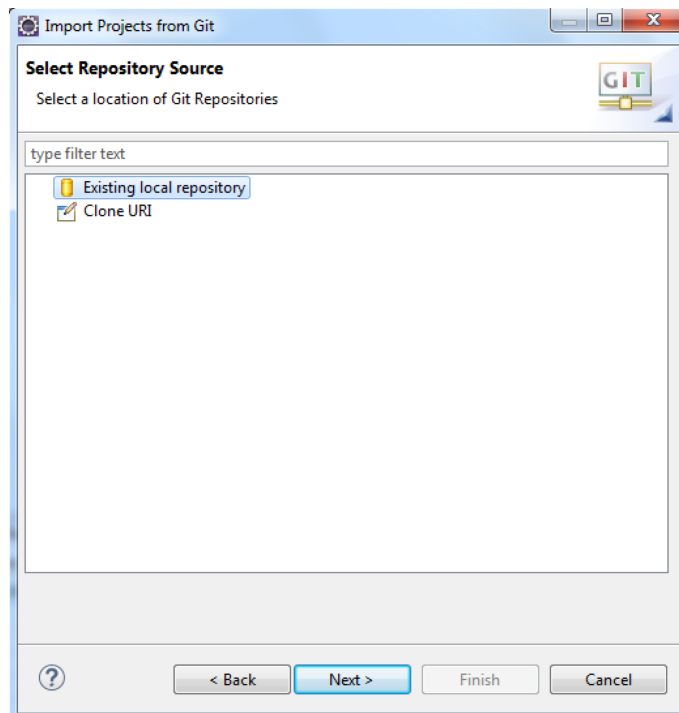


### Create a General project from the Git repository

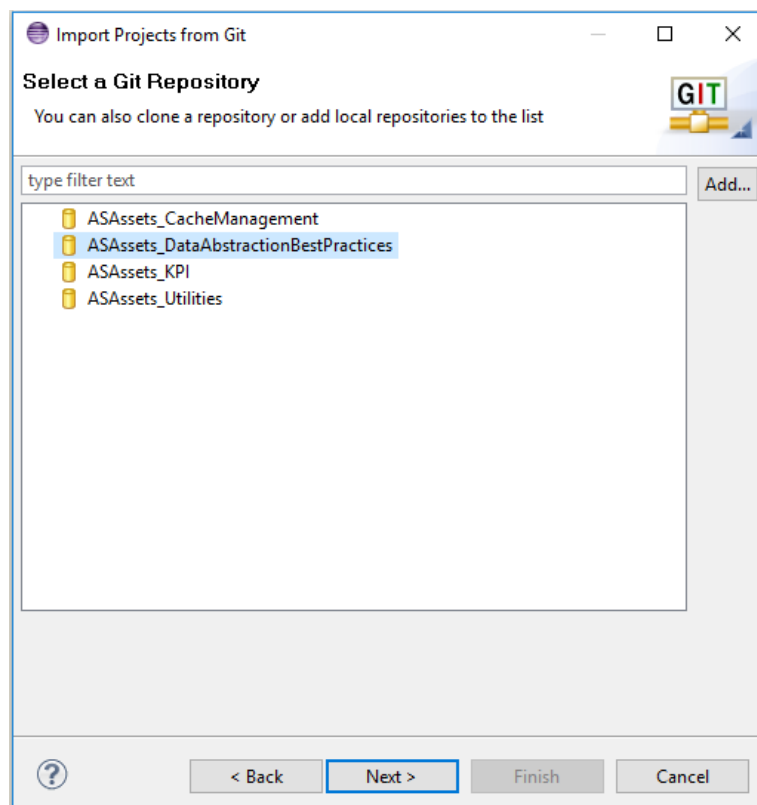
1. Open the Java perspective clicking the "Java" perspective button in the upper right of the Eclipse screen.
2. Right-click in the "Package Explorer" panel on the left side of Eclipse. Select "Import ..."
3. Drill into "Git" and select "Projects from Git". Click "Next >".



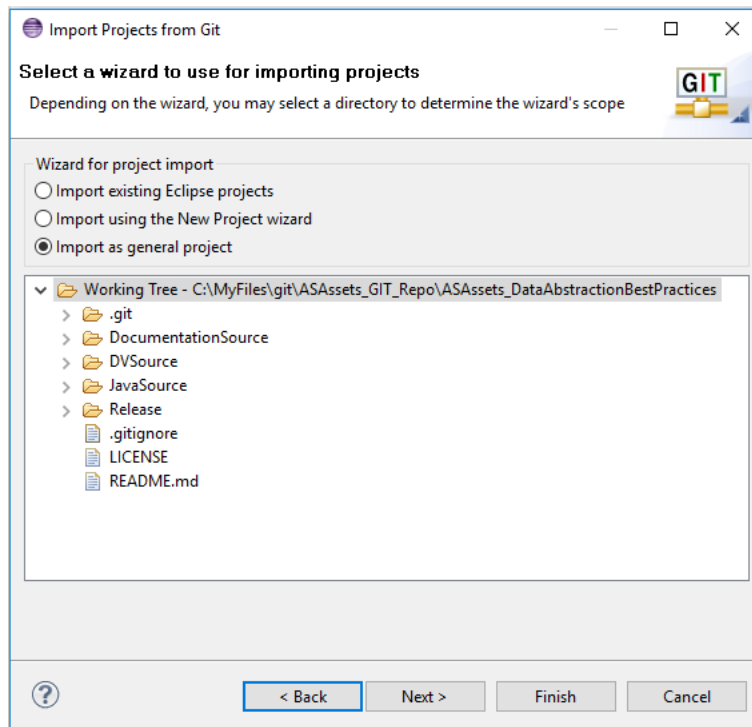
4. In the next panel choose "Existing local repository". Click "Next >".



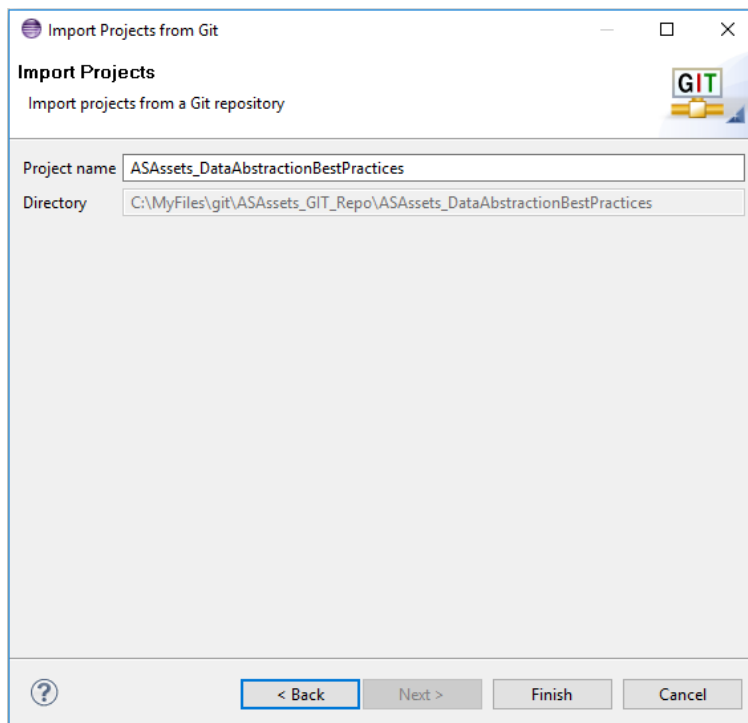
5. Choose the "ASAssets\_DataAbstractionBestPractices" repository. Click "Next >".



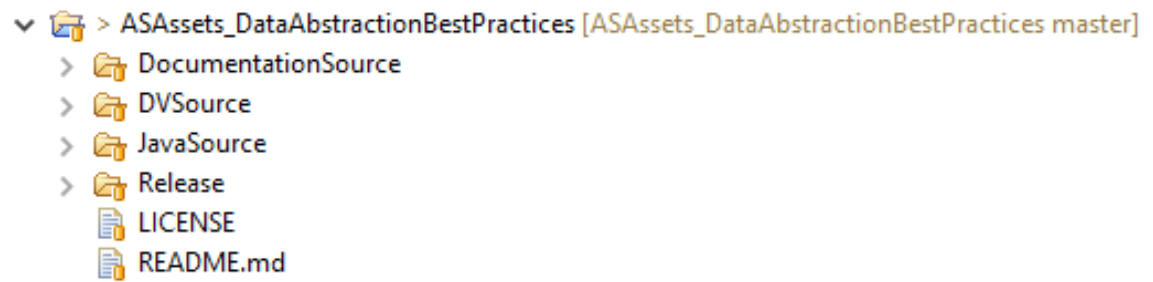
6. Select **"Import as general project"** as the root folder to import. Click "Next >".



7. Select only the "ASAssets\_DataAbstractionBestPractices" project and click "Finish".



8. The imported project:



**Create a Java project from the Git repository JavaSource folder**

1. There are no java projects associated with this project at this time.