OPC Data Logger Case Study

Logging Data to Microsoft Excel

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Introduction

Intended Audience

This document is intended for people who need to log OPC data to **Microsoft Excel**. Plain and simple.

Purpose of this document

This document is intended to provoke design decisions prior to implementation.

This document is intended to help facilitate the easiest possible OPC Data Logger configuration, while realizing the limitations associated with Microsoft Excel, which will result in:

- Allowing all data to be logged

- Preventing the spreadsheet from over-filled

This document will outline a simple data logging scenario along with step-by-step instructions that will accomplish a solution.

Data Logging Scenario

Let's begin by listing our requirements:

1. We have several items/tags that we want to log.

2. We want to analyze the logged data later (not in real time)

3. We want to see the data logged in a table format, showing the data between time-frames.

4. We want to see if any data was questionable/bad during a specific time-frame.

Data Format

We will log our data to a single table, as in the following table:

Item_Name	Item_Value	Item_Quality	Item_Timestamp
Channel1.device.1.Tag1	10	192	1/1/2008 12:01:01
Channel1.device.1.Tag1	20	192	1/1/2008 12:01:01
Channel1.device.1.Tag2	30	192	1/1/2008 12:01:01
Channel1.device.1.Tag1	40	192	1/1/2008 12:01:01
Channel1.device.1.Tag1	50	192	1/1/2008 12:01:01
Channel1.device.1.Tag3	60	192	1/1/2008 12:01:01

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Configuring the OPC Data Logger

Configuration Process

The process for configuring the OPC Data Logger to solve our needs is as follows:

1. Create a connection to our OPC Server.

2. Import/add the Items/Tags that we want to log and specify HOW we want them to be collected.

3. Configure the File for loading within Microsoft Excel.

4. Putting it all together.

We will make this as painless as possible as we will simply use the Wizards.

Creating a connection to the OPC Server

Open the OPC Data Logger. If this is the first time you have launched the application, the **Project Wizard** will automatically launch. Otherwise, let's create a new configuration by choosing **New** from the **File** menu.

1. The following steps assume that you are already sat at the **Project Wizard** main-page:
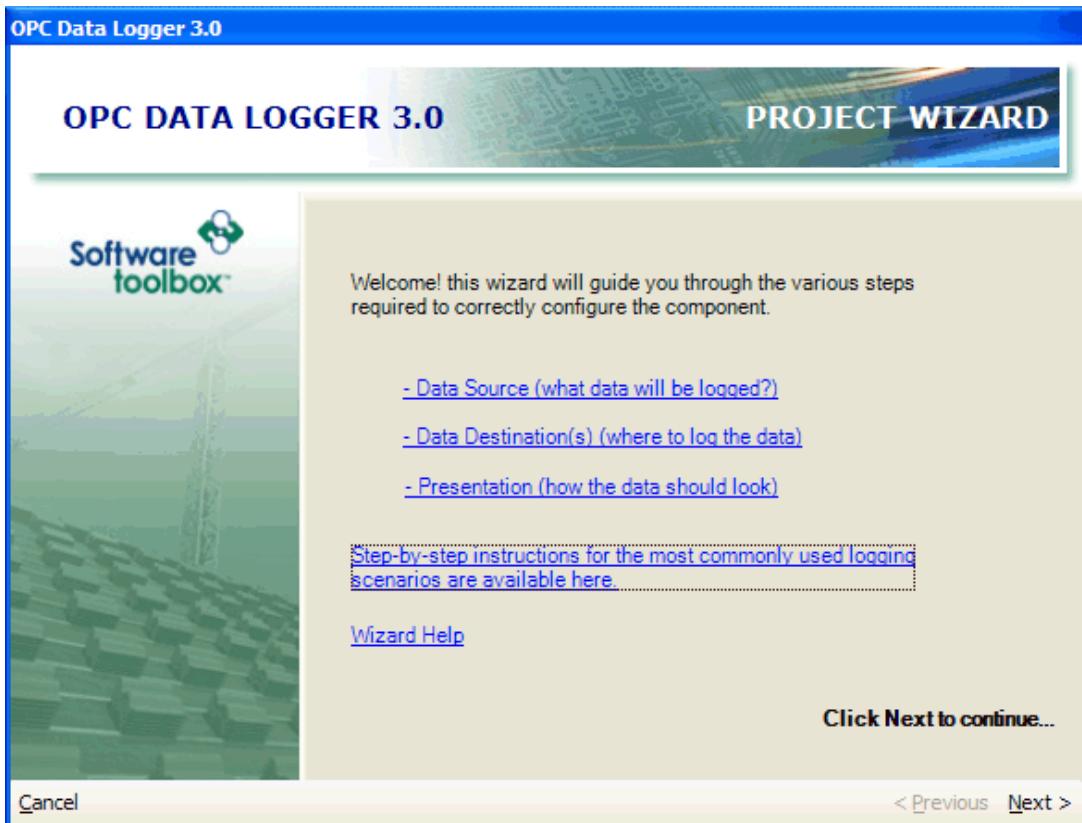
Click the **Next** button.

2. You can give the *Project* a name, which is not important at this point so hit **Next**:

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3. Creating a **Data Collector** is how you specify the source of your data. In this case we need to create a new collector that points to an OPC Server:
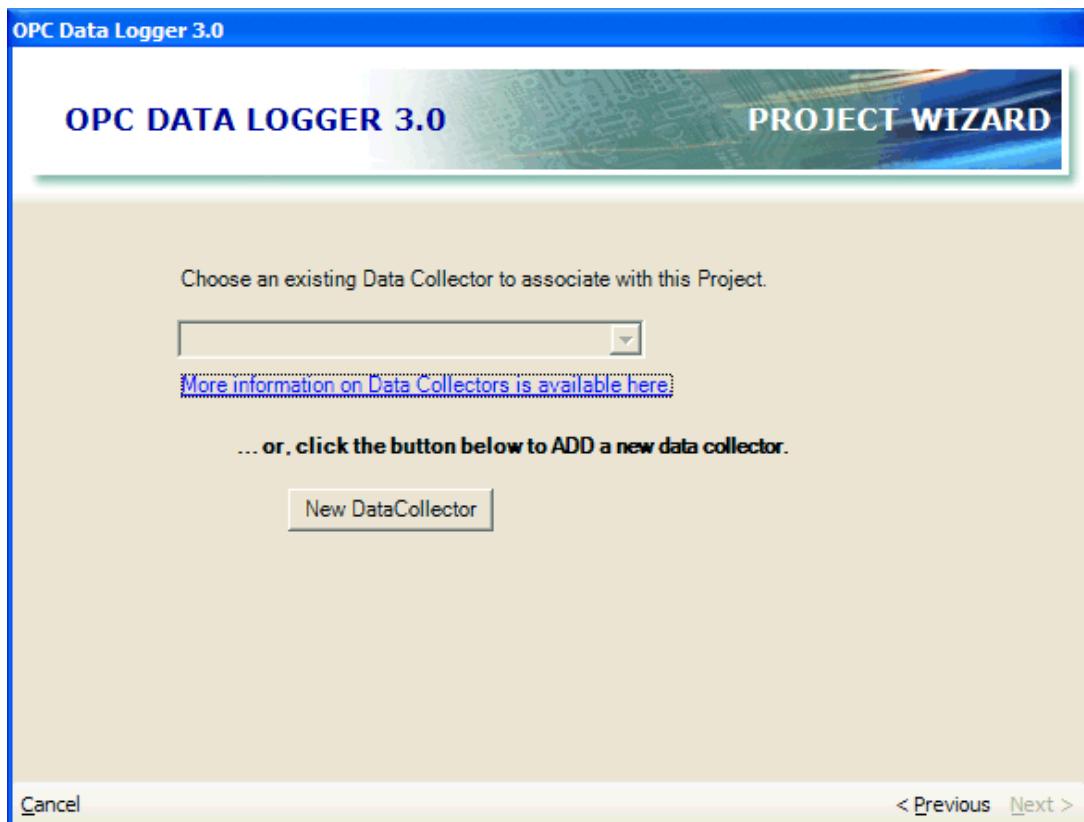
Click the **New DataCollector** button.

4. The **Data Collection Wizard** will open:
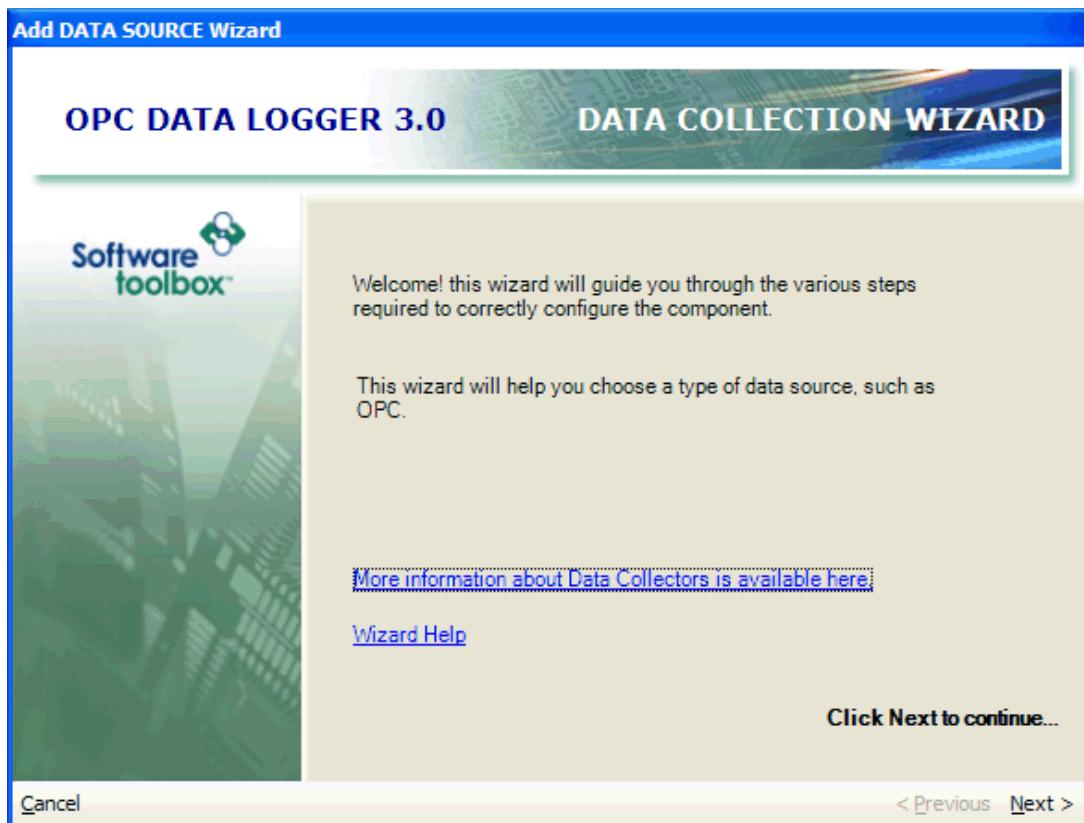
Click the **Next** button.

5. Now you can choose the *Plugin/driver* for the data collection:
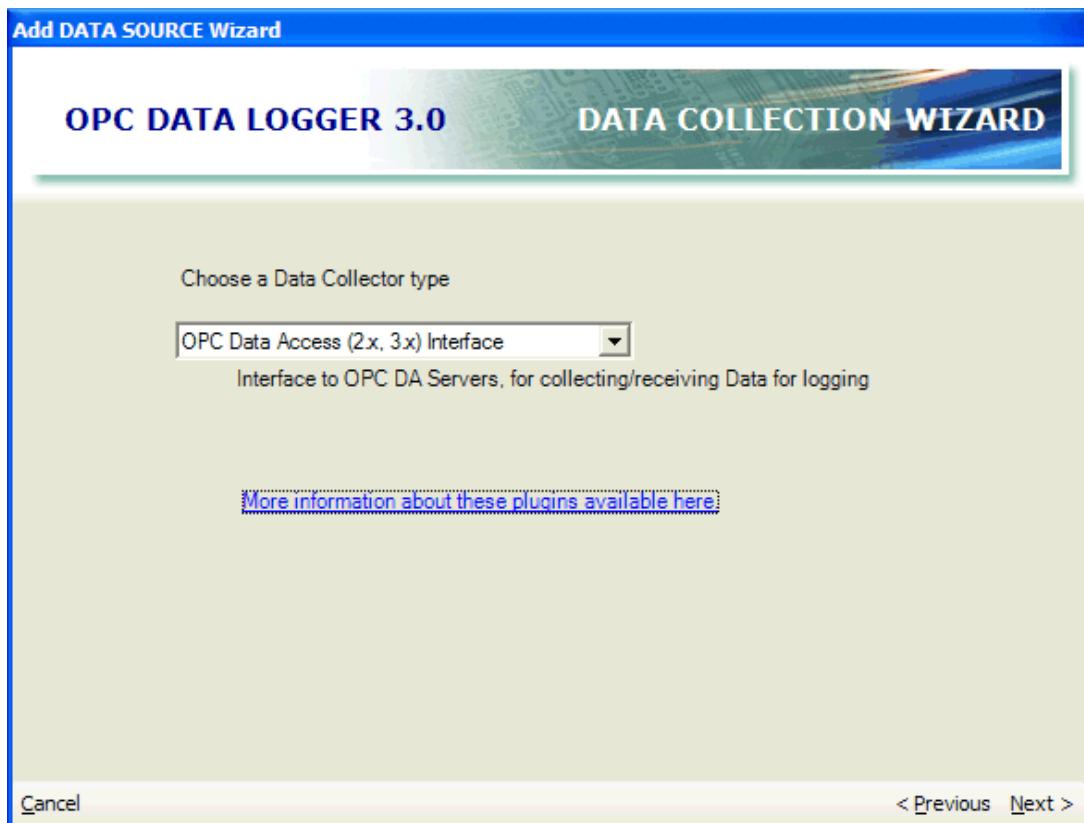
Choose **OPC Data Access (2.x, 3.x) Interface** and click **Next**.

6. Now you can name this collector:
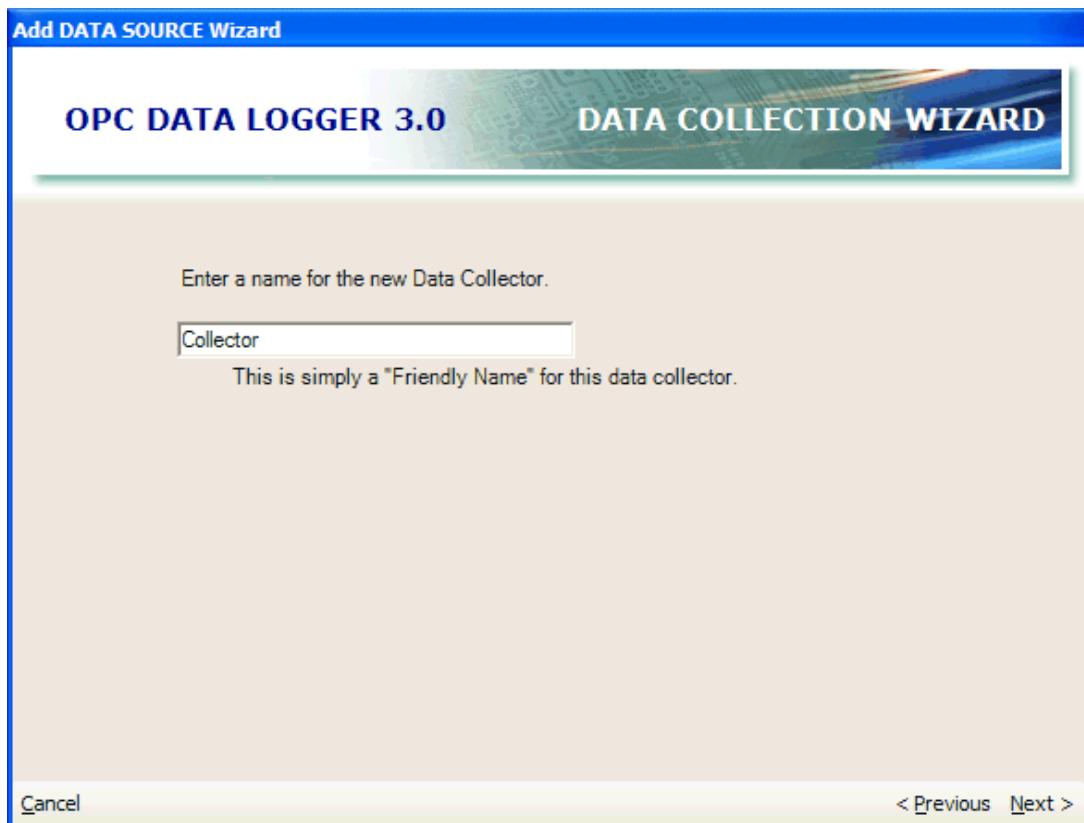
This is not too important, so we can accept the name and click **Next**.

7. Now we will choose the computer where the OPC Server resides:
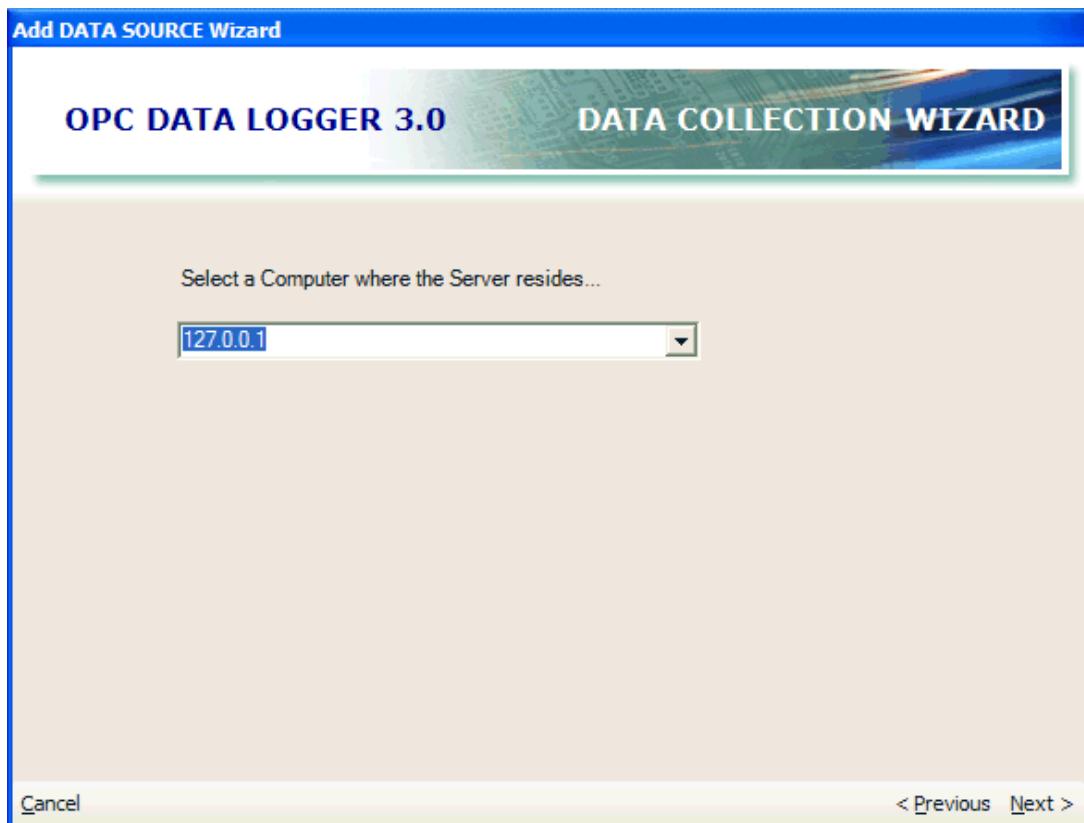
Pick the computer from the dropdown box and then click **Next**.

8. Now we pick the OPC Server available on the computer:
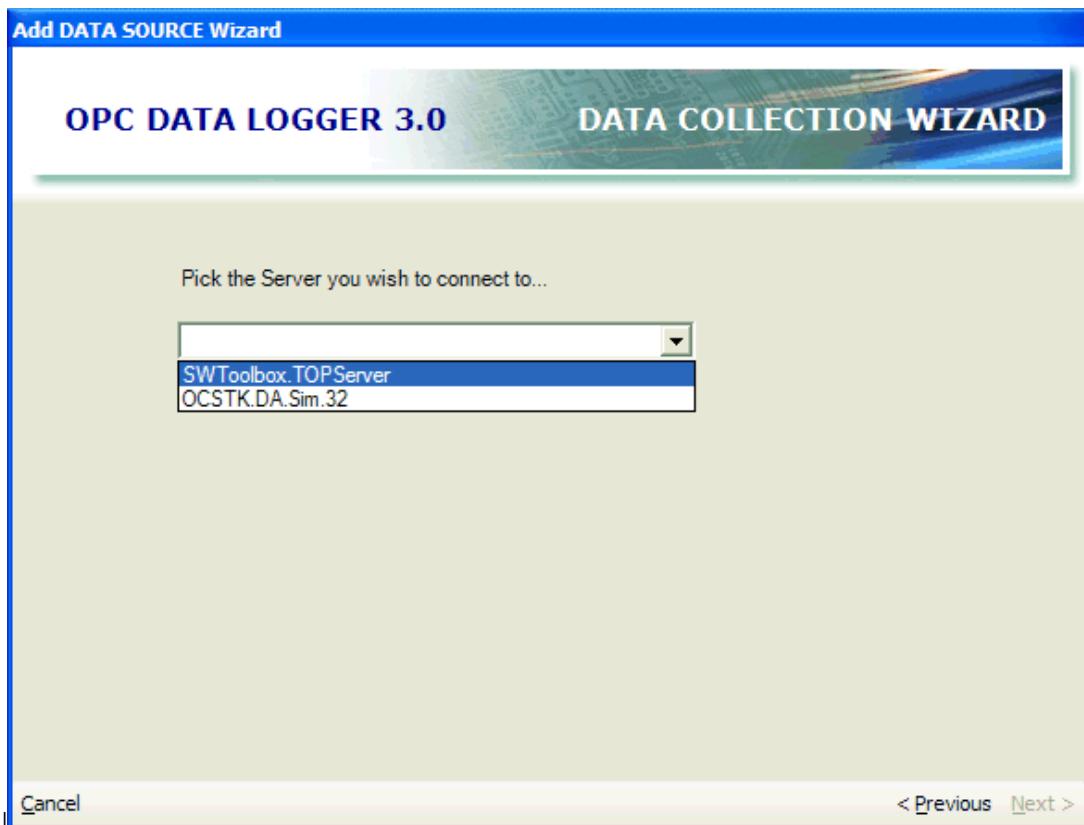
Click the **Next** button to continue.

9. Now finish the wizard:
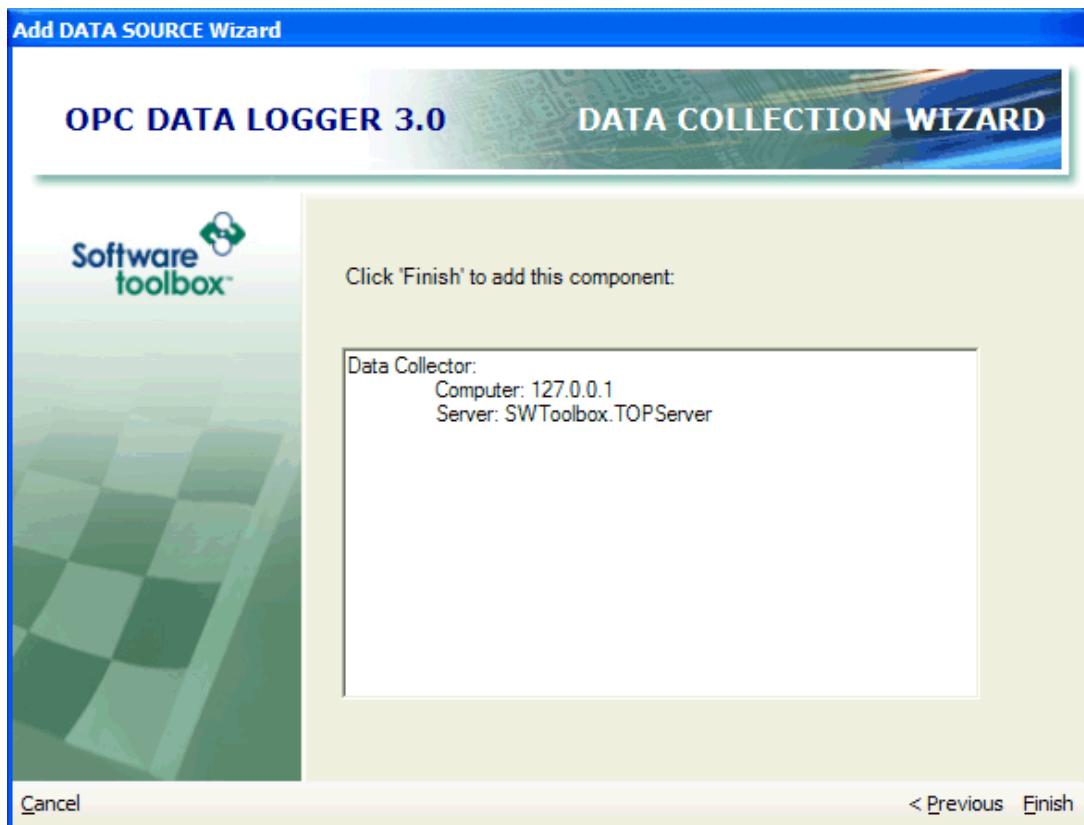
10. An OPC Data Collector has now been defined.

Importing the Items/Tags

1. After completing the **Data Collection Wizard** you should now be looking at the **Project Wizard** again:
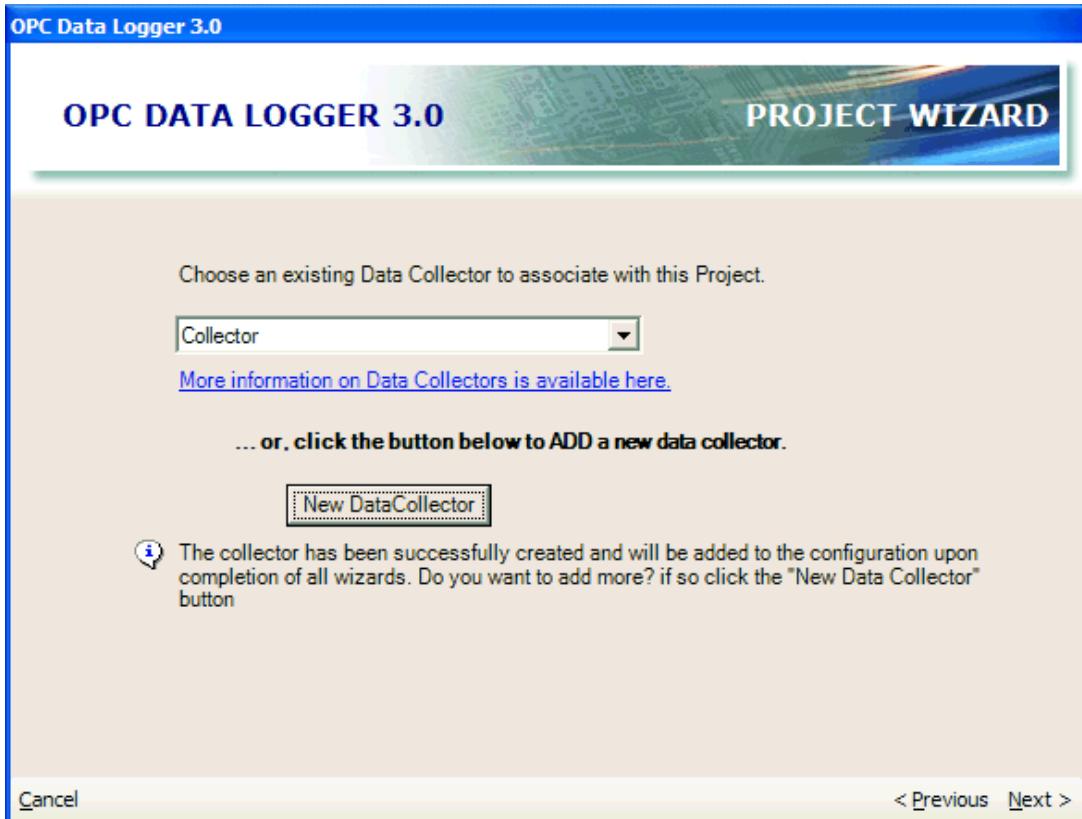
The Data Collector you just added should now be visible and selected in the dropdown. Click **Next**.

2. Now we will import our Items:
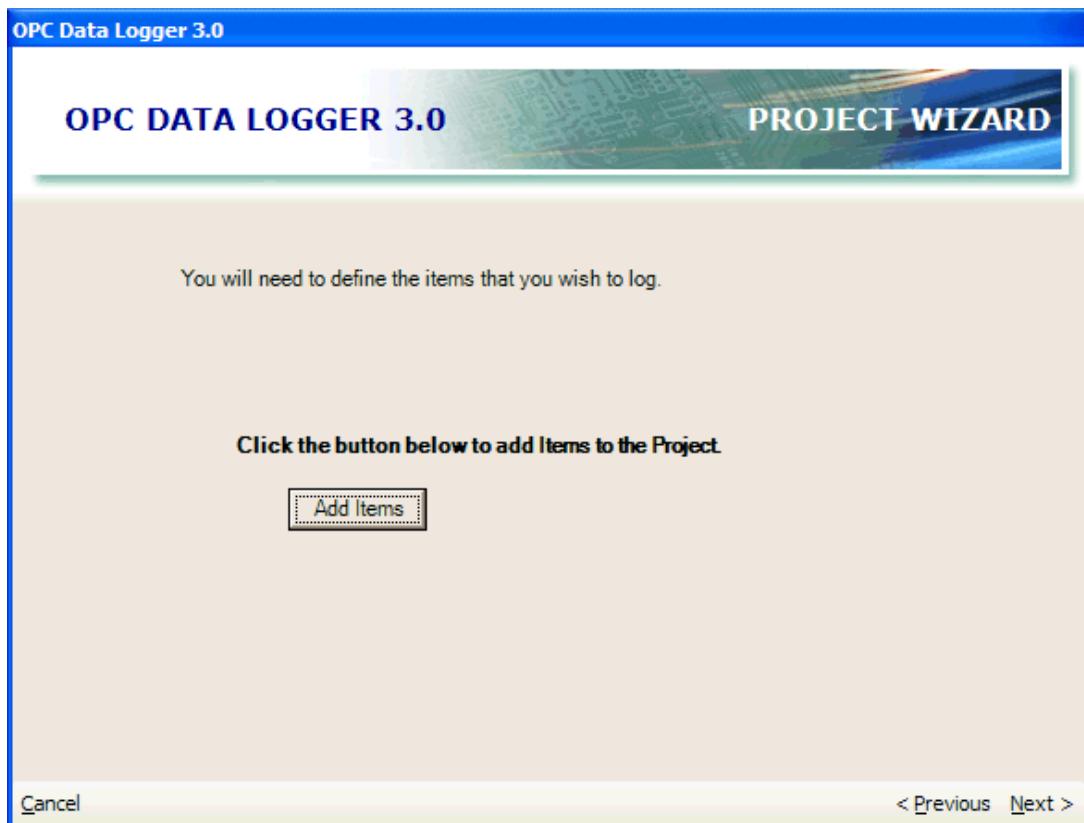

Click the **Add Items** button.

3. The **Group & Items Wizard** will open:
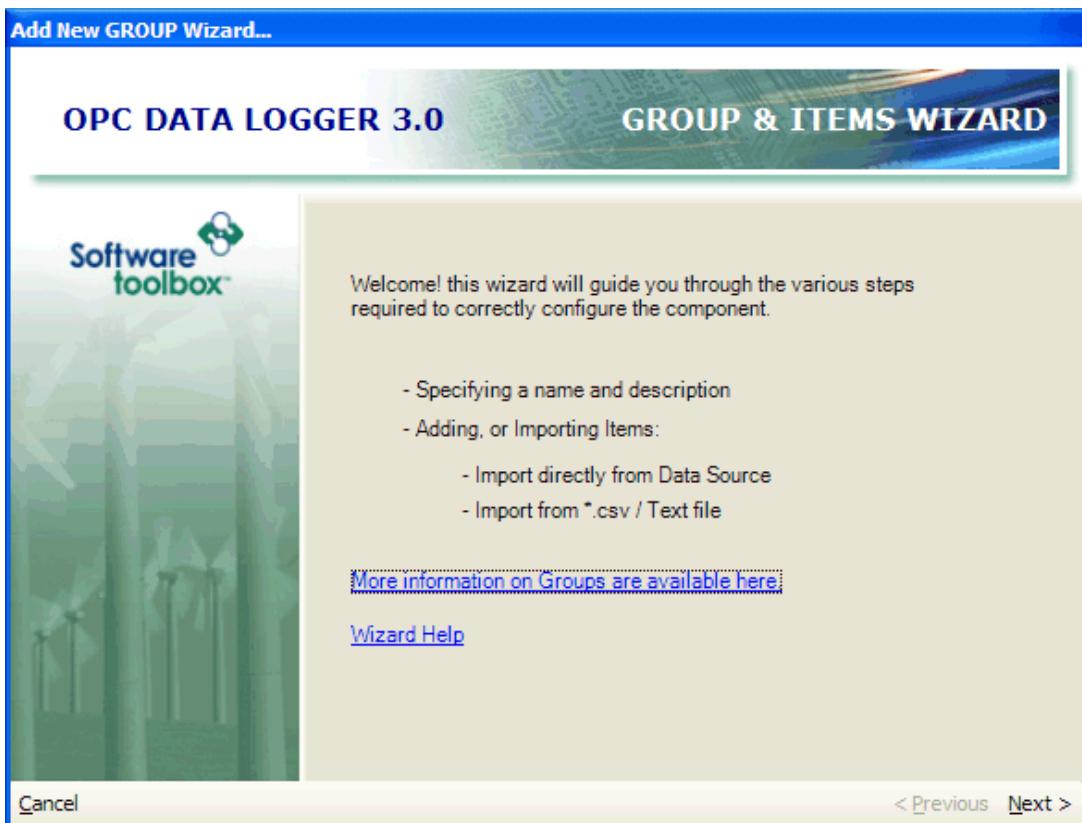
Click **Next**.

4. The *Items* will be added to a *Group* and the following step allows you to define the name of this group:

The group name is not important at this time, so click **Next**.

5. Now we will specify **HOW** we will read the values of these Items:
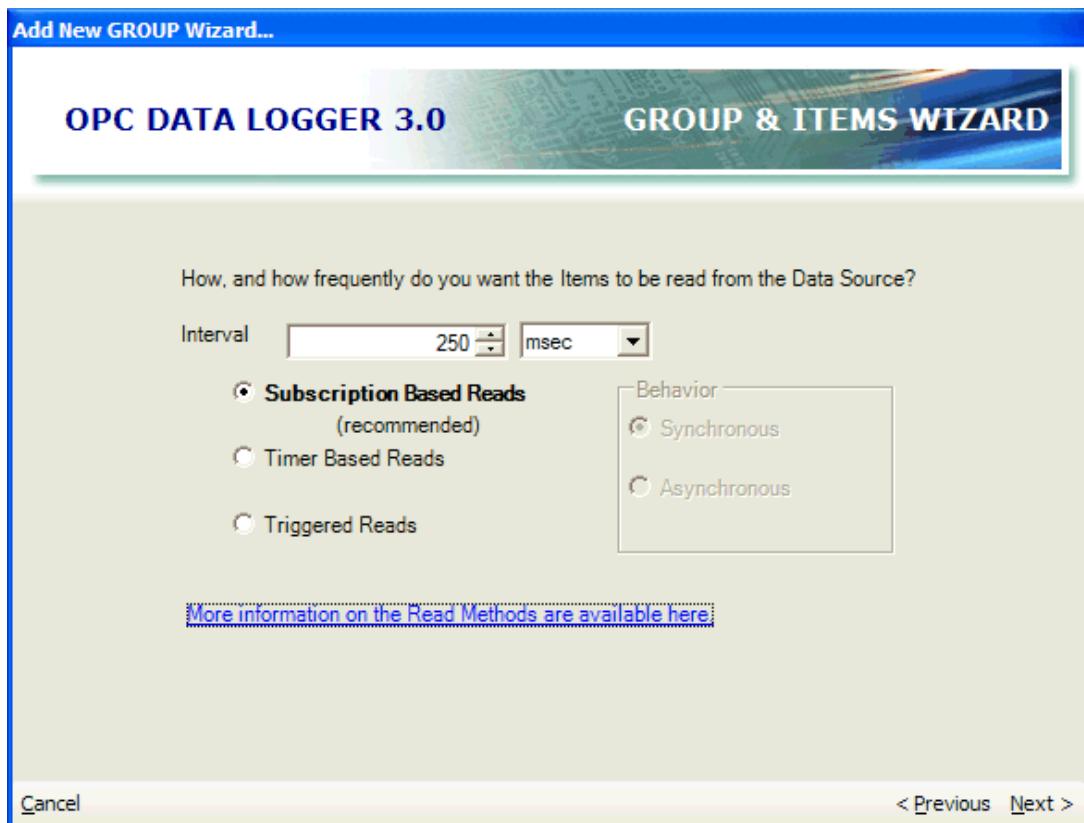
Pick the method that best suits your needs, which is typically the **Subscription Based Reads** option. Click **Next**.

6. Next we can specify how we want to specify the items to log:

Add New GROUP Wizard...

OPC DATA LOGGER 3.0   **GROUP & ITEMS WIZARD**

How would you like to add items to your group?

- ⦿ **Manually choose items to add**
- ○ Auto import from Data Source (Server)
- ○ Auto import from Text file (*.csv)

More information on adding Items is available here.

Cancel   < Previous   Next >
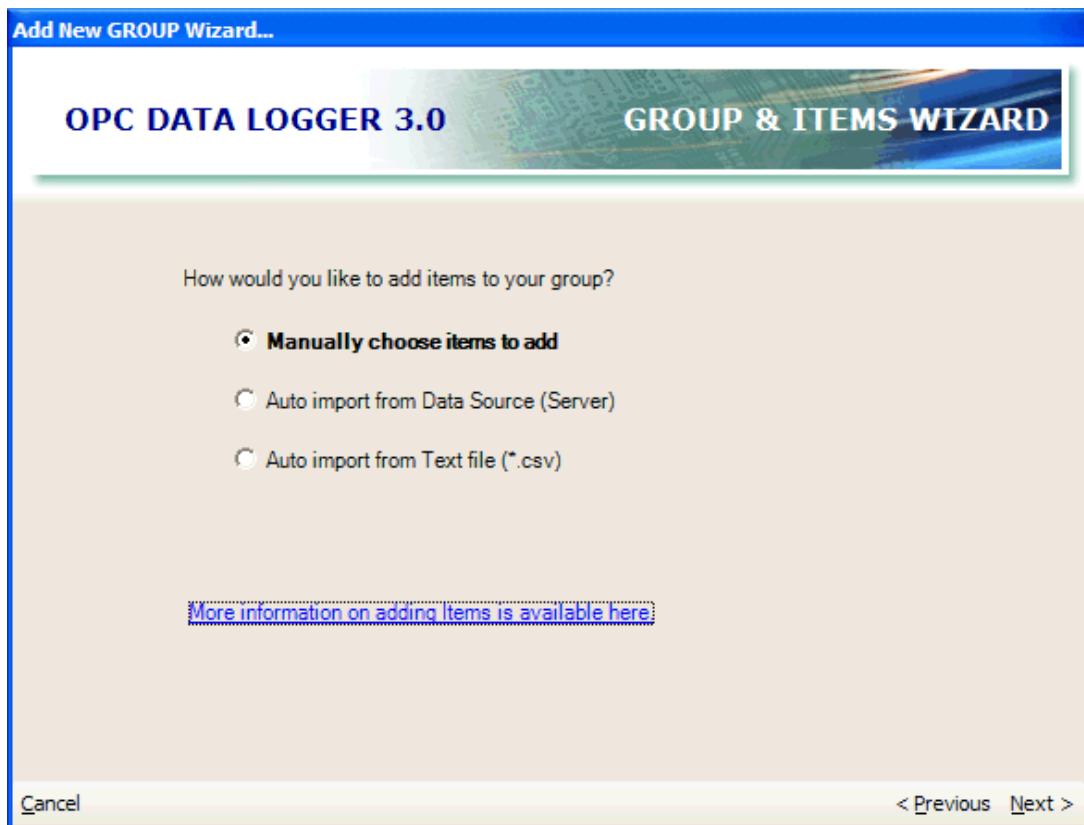
If you want to log all of the Items available in the OPC Server then press the **Auto import from Data Source (Server)** option, otherwise choose **Manually choose items to add**. Click **Next**.

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7. The Items list window will open which is where lists the items to log. The list will be empty:
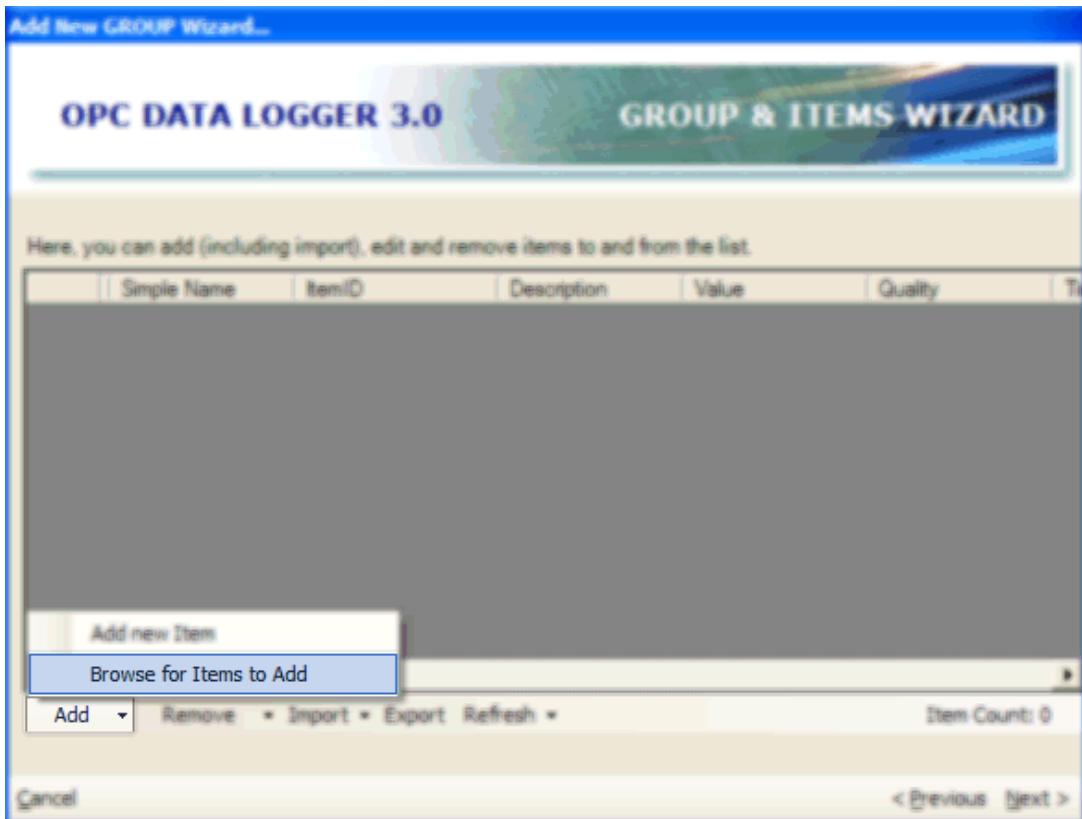
Click the **Add** button at the bottom of the dialog and choose **Browse for Items to Add**.

8. Item **Group & Item Browser** dialog will open allowing you to browse the available items within your OPC Server:
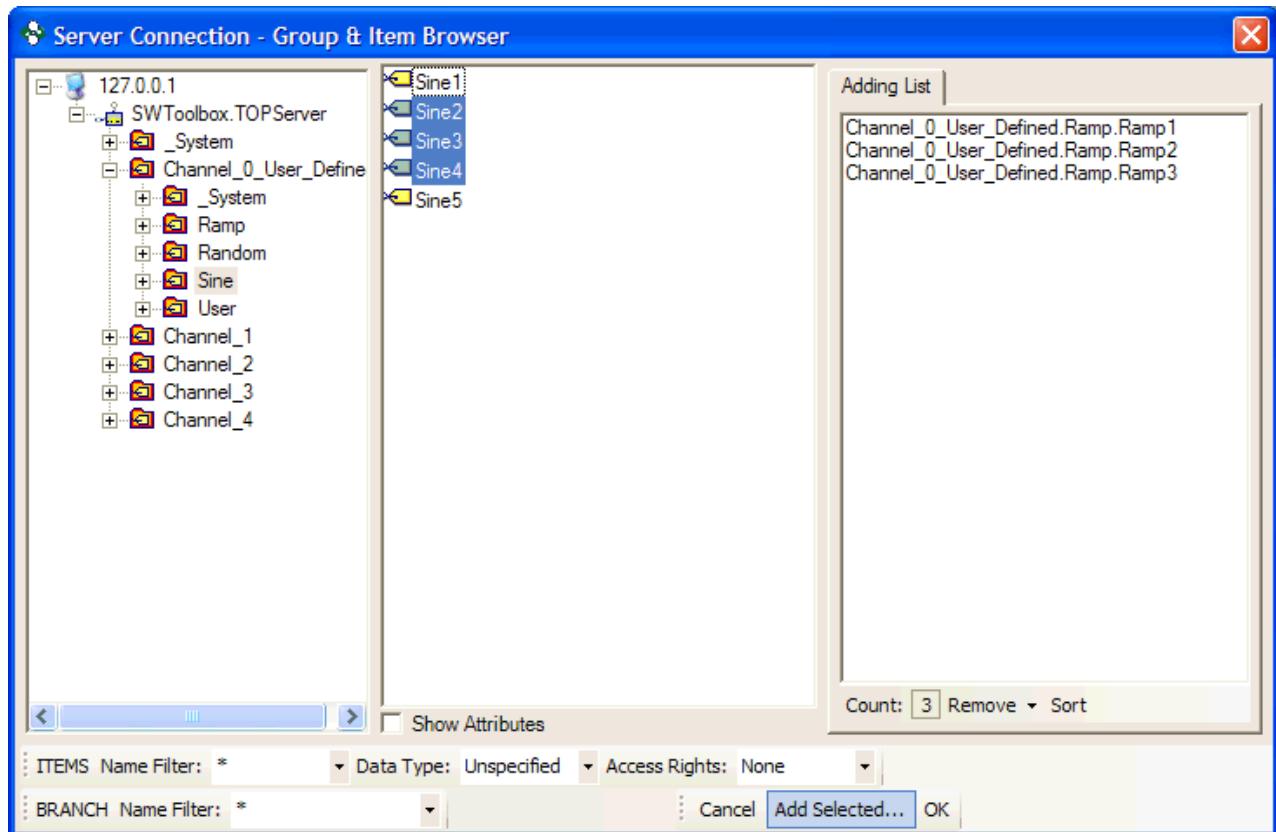
Simply highlight the items you want to log and press the **Add Selected** button at the bottom. This will store these items in a list. You can continue browsing adding more items to this list. When finished simply click the **OK** button.

9. The items will be returned into the previous wizard page:

Click **Next**.

10. The wizard summary page will be displayed.
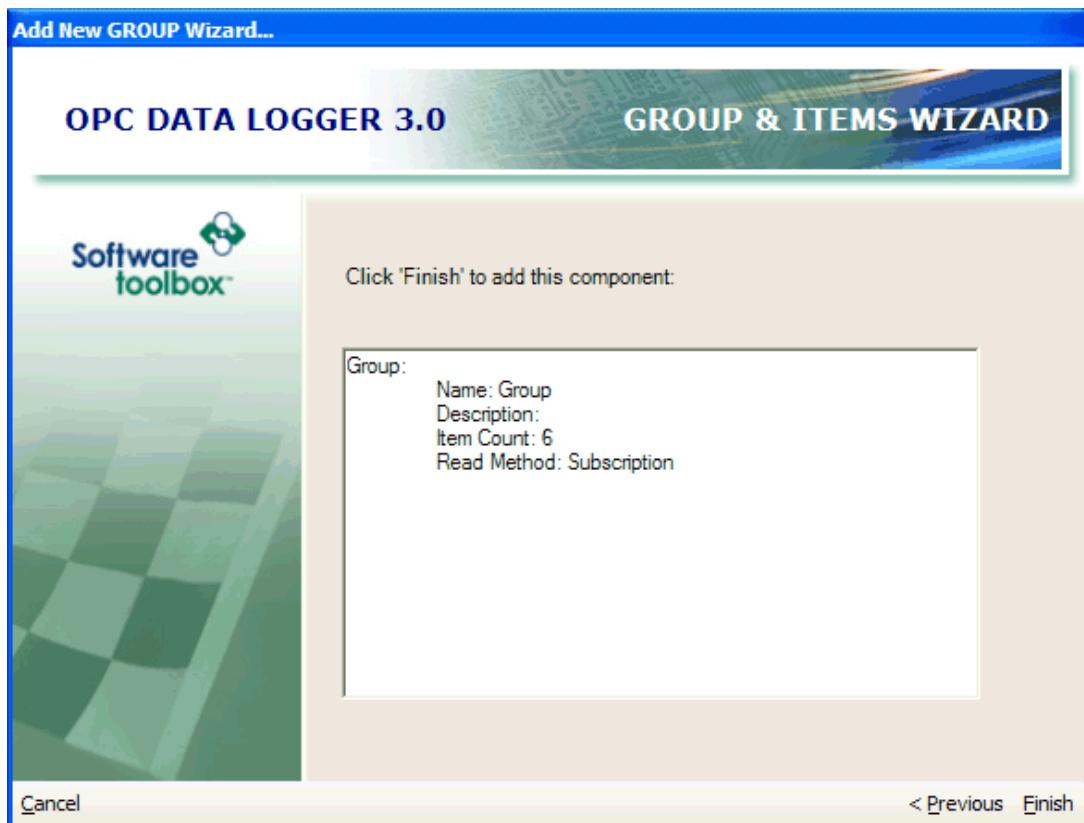
Click **Finish**.

11. The group and items have now been added.

## Configuring the Data & File for use with Microsoft Excel

1. Once the **Group & Items** wizard closes you will be returned back to the **Project Wizard** page where you configure the items. Click **Next**.

2. We will now configure our **Data Storage**, which in this case will be our file for Microsoft Excel.
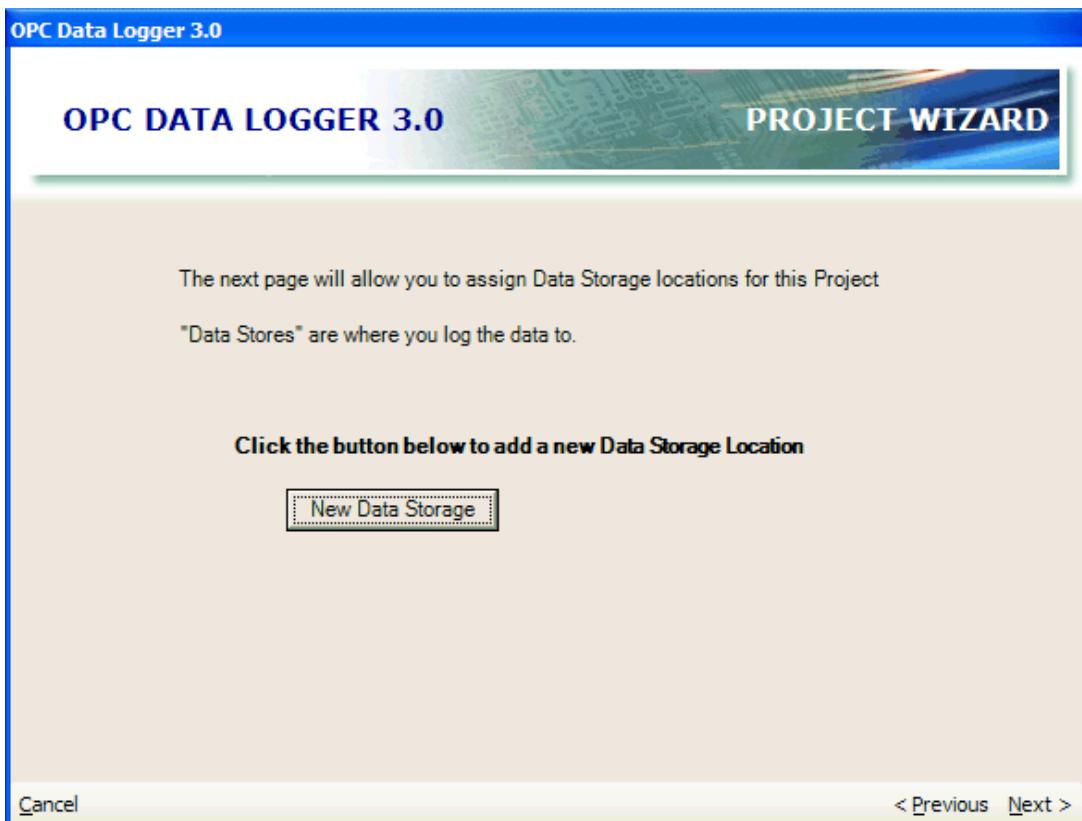
Click the **New Data Storage** button.

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3. The **Data Storage Wizard** will open:
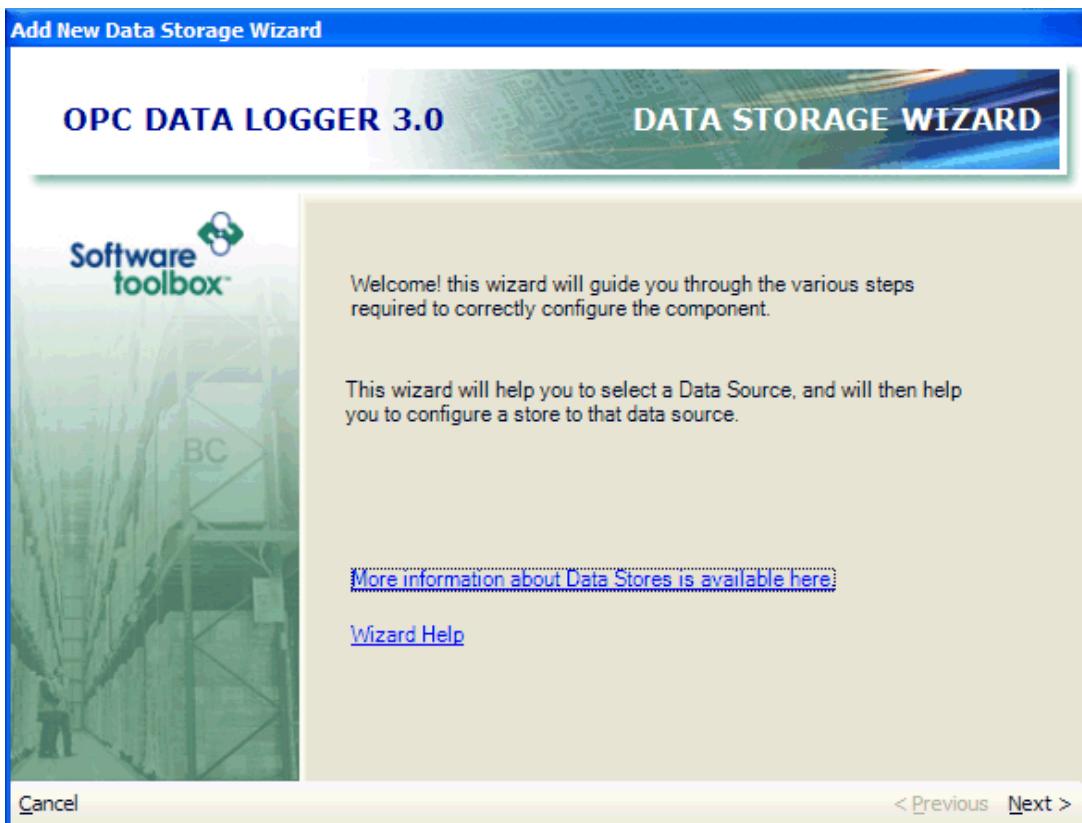

Click **Next**.

4. We can now pick where to log our data to, we will log to a **Text File**:
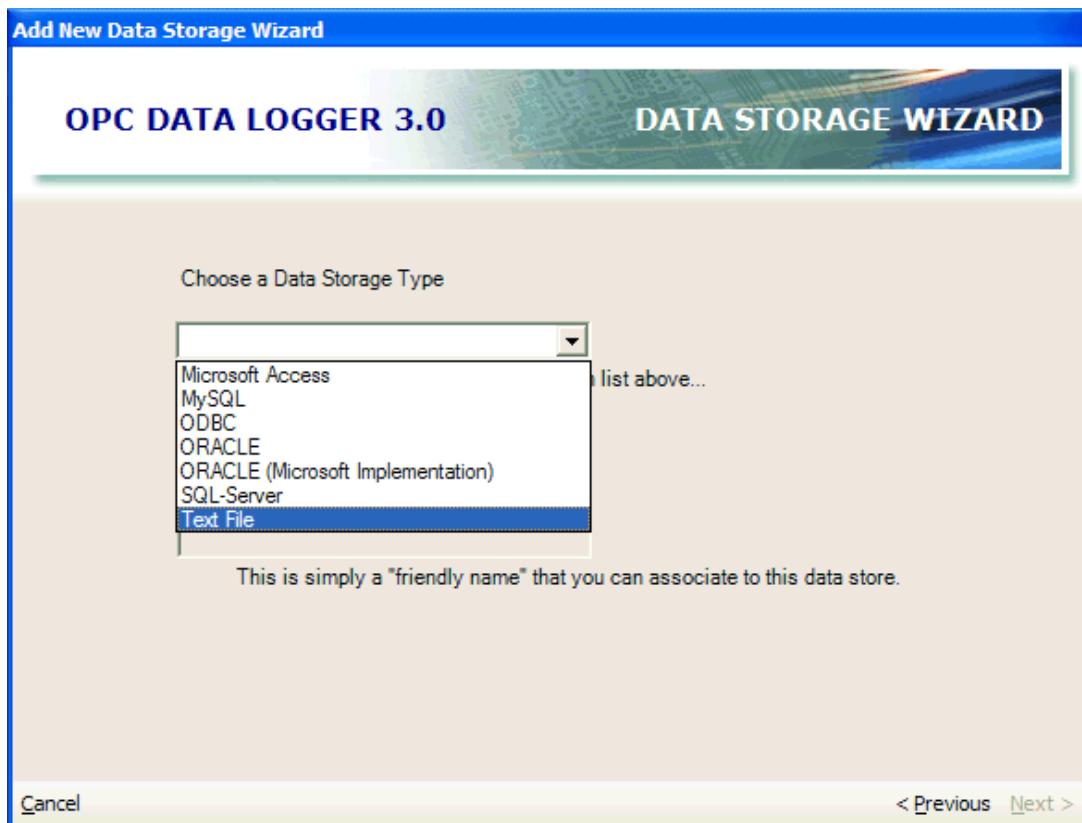
Click the **Next** button.

5. We will now configure *How* the data should look within the file:
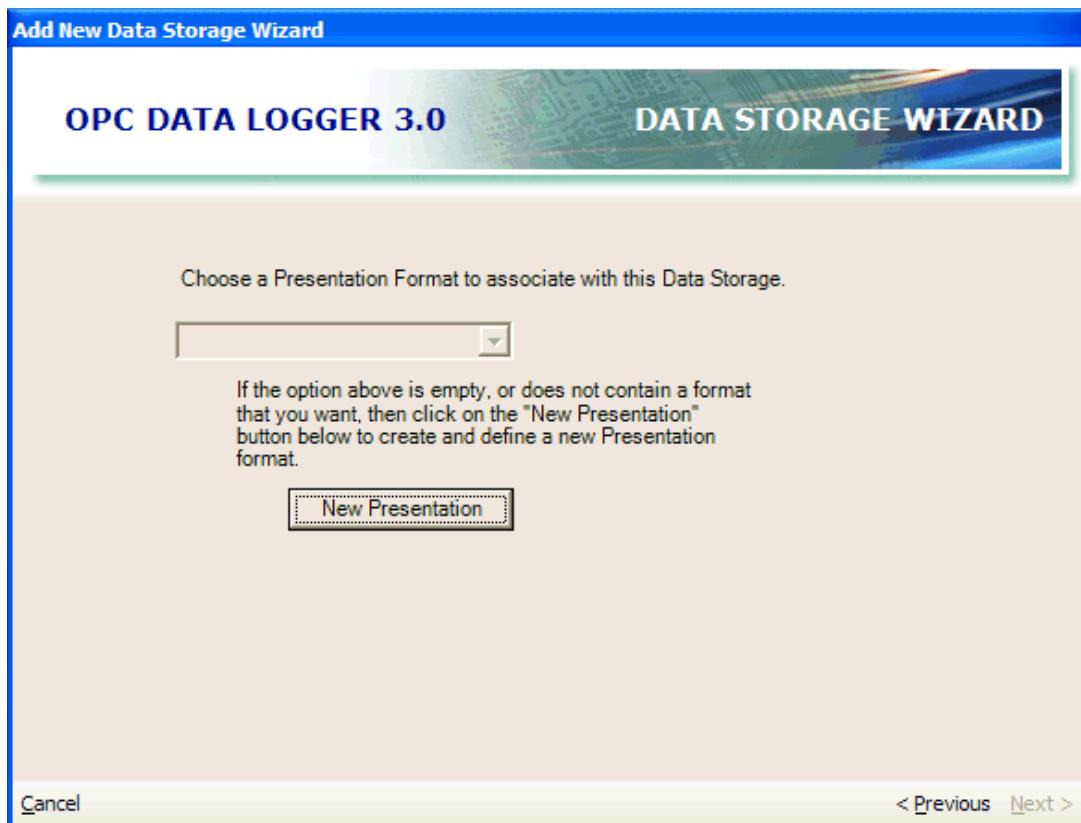

Click the **New Presentation** button.

6. The **Presentation Wizard** will open:
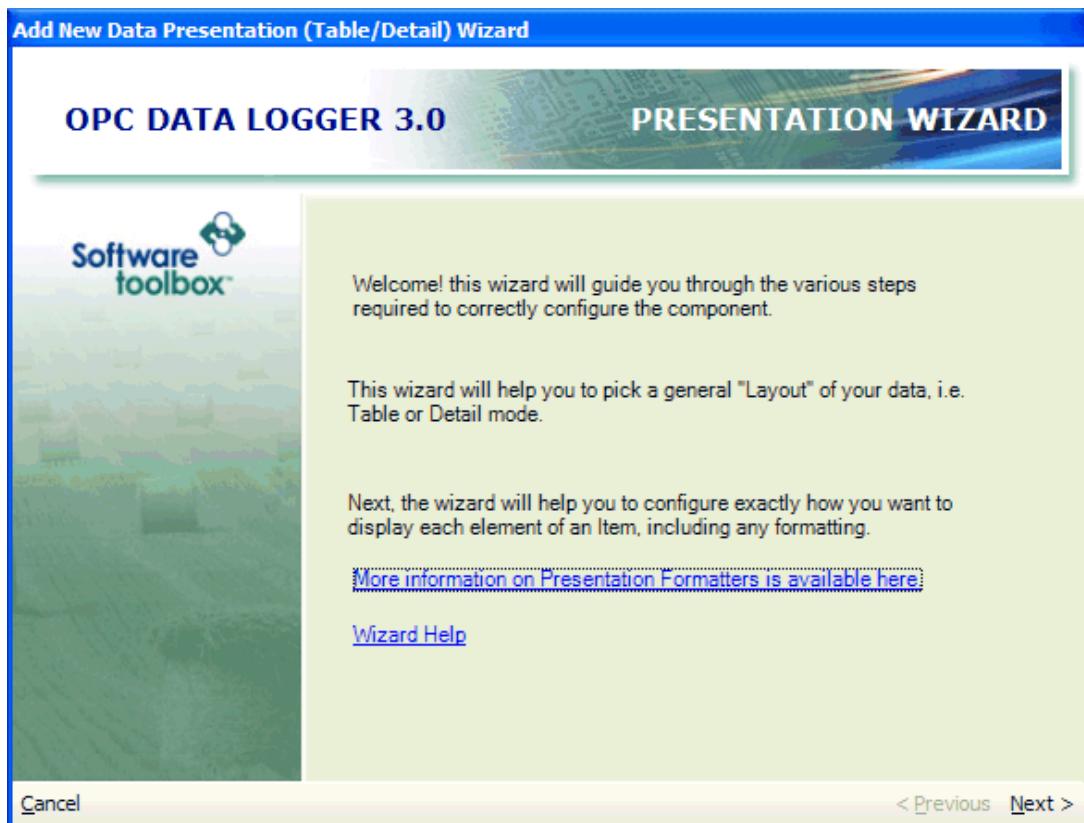
Click **Next**.

7. You can choose between *Table* and *Detail*. Let's choose **Detail**:

Click the **Next** button.

8. You can now give the *Presentation formatter* a name:

This is not important at this stage, so click the **Next** button.

9. The wizard will prompt to automatically add the columns shown in picture. These columns are highly recommended for logging:

Leave the **Automatically add the pictured columns** checked and click **Next**.

10. The item *Attributes* that we will log are now displayed where they can added, modify and removed:

Simply click **Next**.

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11. The summary page will be shown:
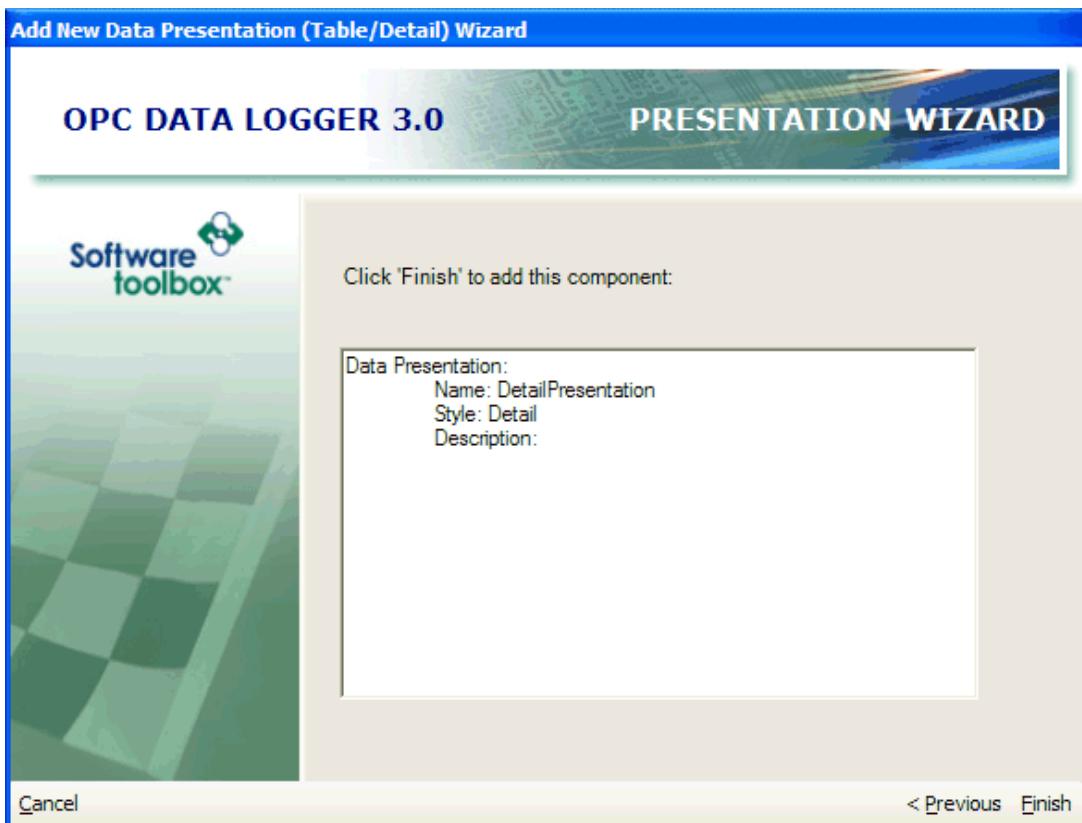
Click **Finish**.

12. We will now return to the **Data Storage Wizard** but this time the *Detail presentation* format we just added will be automatically selected in the dropdown:


Click **Next** to proceed.

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13. We can now specify the file for use with **Microsoft Excel**:
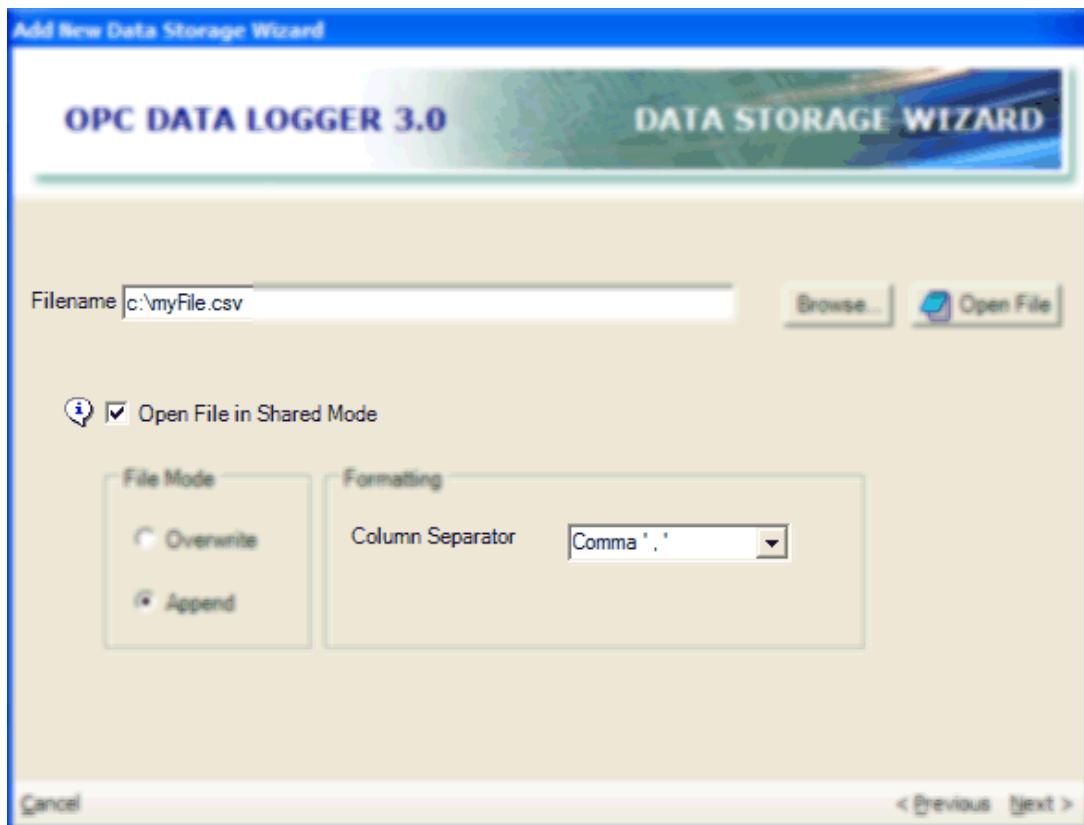
a. Make sure that the filename ends with **CSV**.

b. **Open File in Shared Mode** should be checked. This will allow you to log data to the file while also allowing Microsoft Excel to open the file in a read-only mode.

c. **Column Separator** needs to be **Comma**.

d. Click **Next**.

14. The summary page will be displayed:
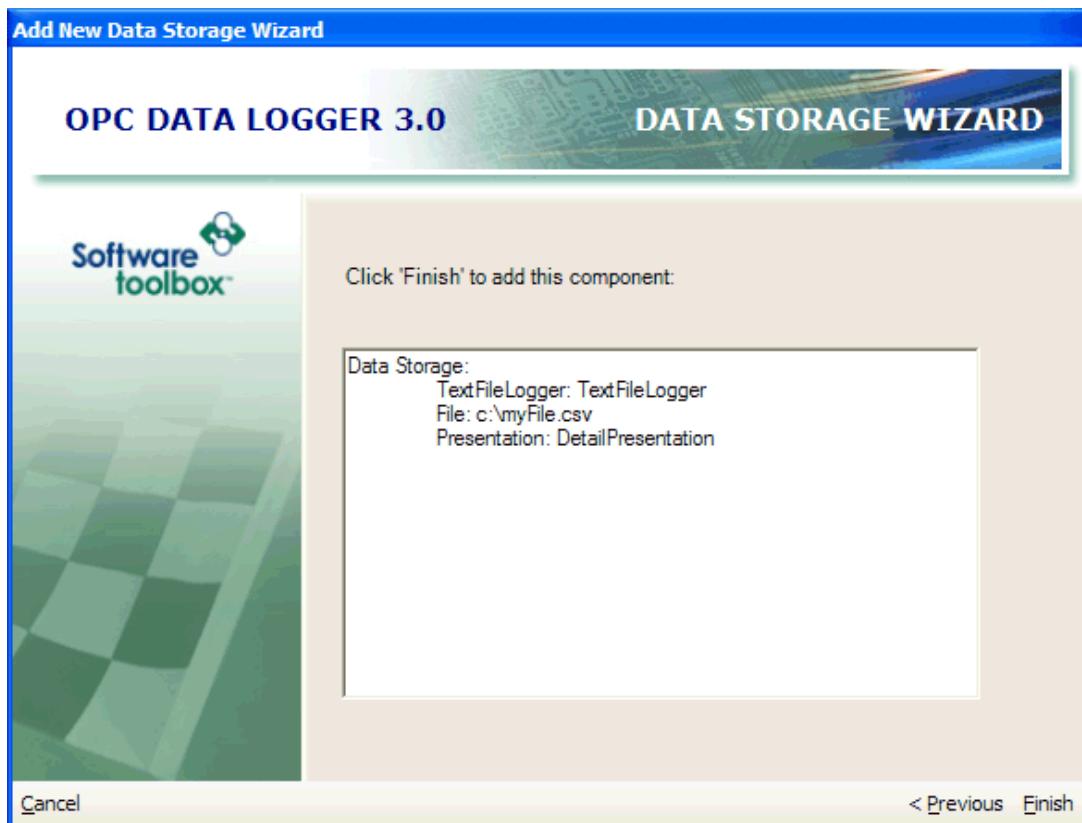
Click **Finish**.

Putting it all together

1. When the **Data Storage Wizard** closes you will be returned to the **Project Wizard**. Simply click the **Next** button.

2. We will now specify that this configuration will log data to just the **Microsoft Excel** file we have previously created:


NOTE: You could also log to other places too, such as other files and/or databases and you would simply list them in this window.

Click the **Next** button to continue.

3. The summary page will be displayed:
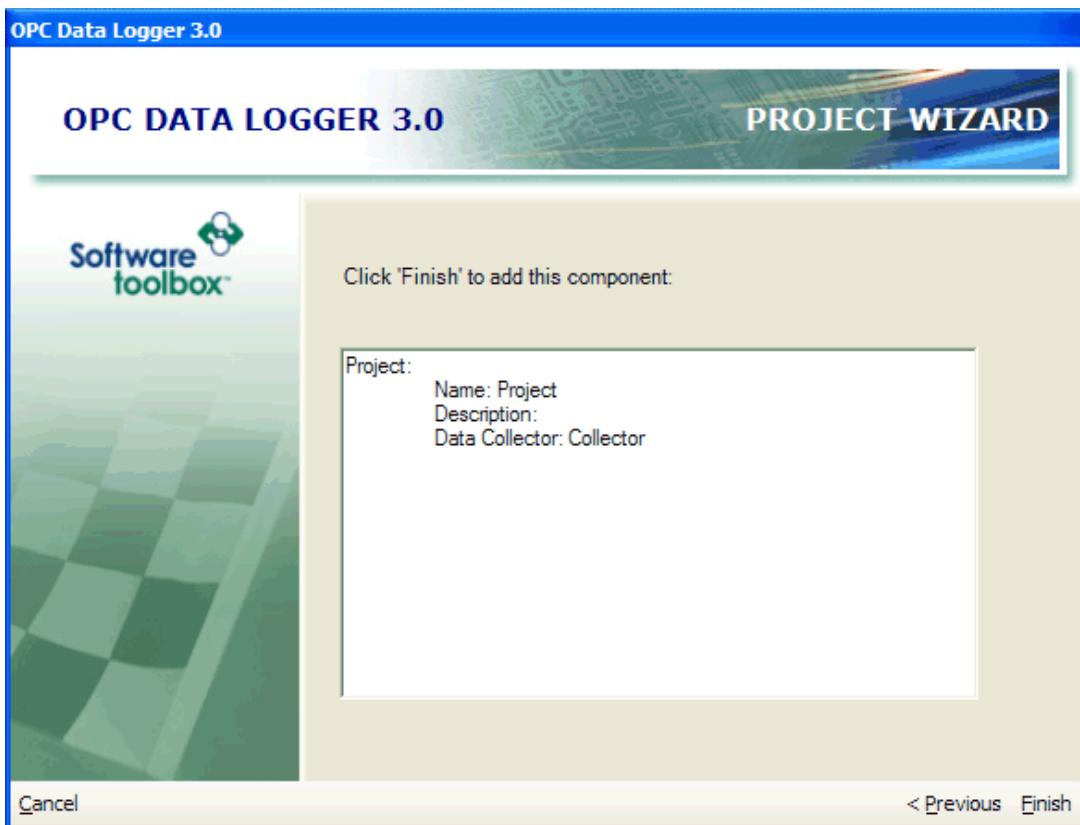
Click **Finish**.

The OPC Data Logger has now been configured and each of the components the various wizards added will be shown in the configuration tree on the left-side of the window:
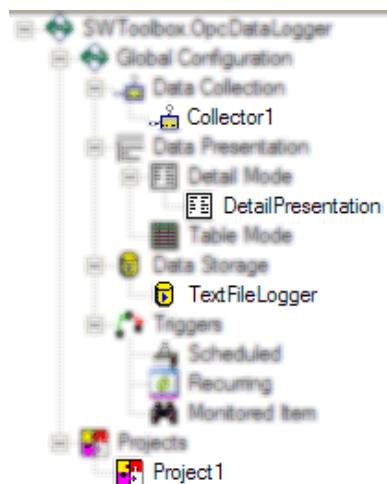
Logging Data and Loading into Microsoft Excel

To test the configuration, simply click on the **Test Run** icon on the toolbar.

Likewise, you can actually start logging the data by choosing **Start Logging** from the **Logging** menu. This will cause the **OPC Data Logger Service** to start logging the data full-time.

After a short while you can open the file within Excel. The quickest and easiest method is to simply open the properties of the text file by right clicking on it from the configuration treeview:
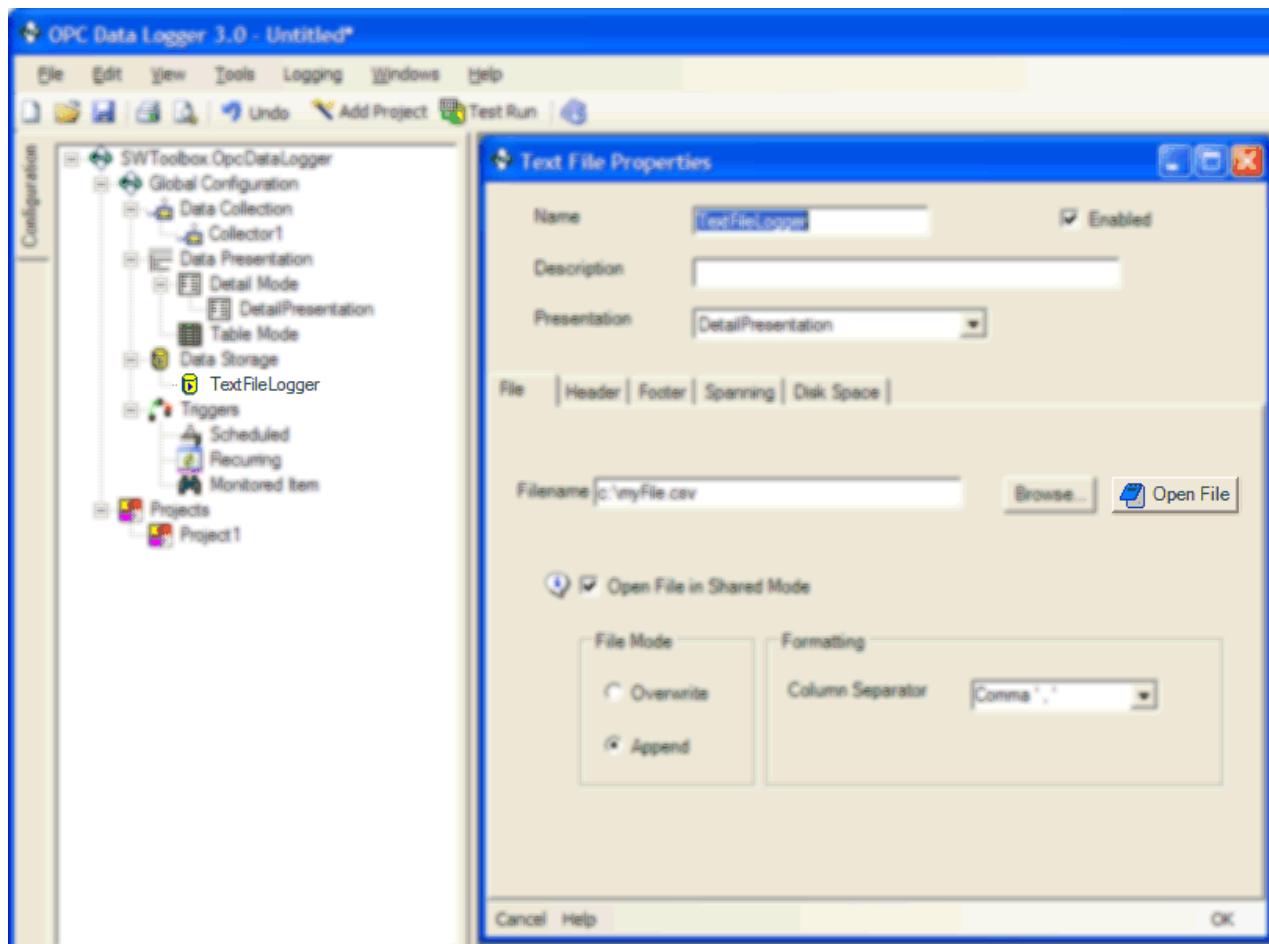
Within the **Text File Properties** screen you can click on the **Open File** button. This should cause the file to open directly within **Microsoft Excel**.

Alternatively, open Microsoft Excel first and then use the **Open** option within the **File** menu and then locate the *.CSV file being used by the OPC Data Logger.