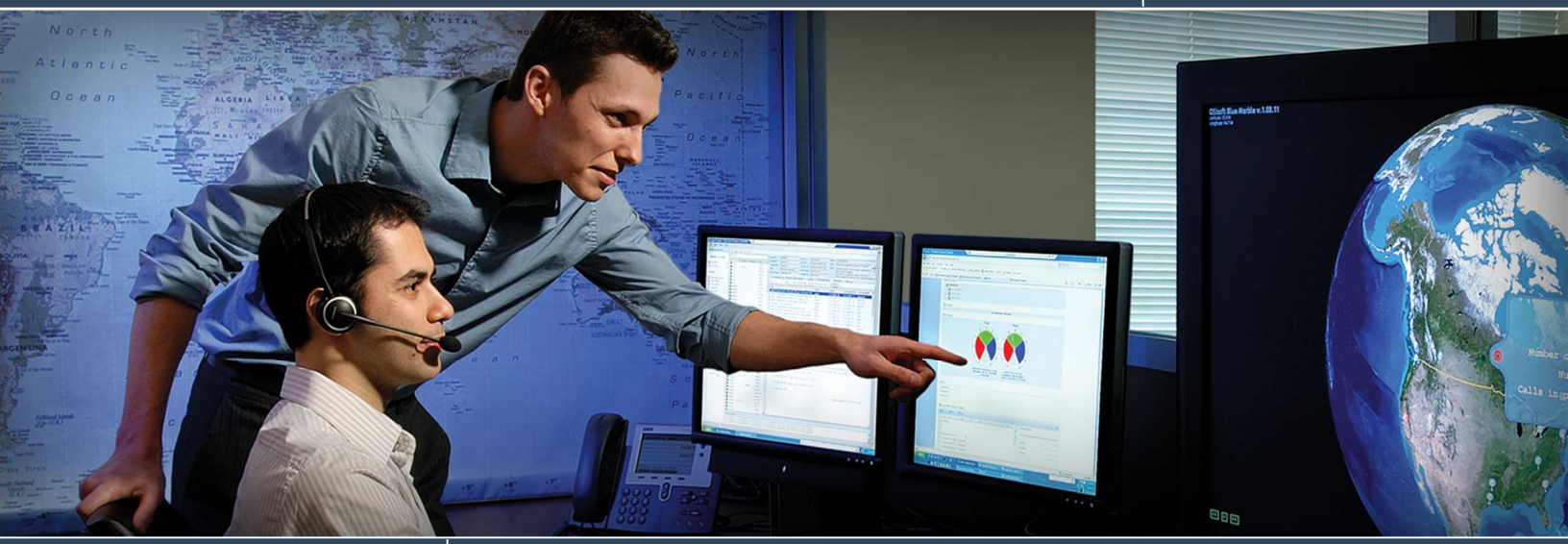

Using PI OLEDB Enterprise 2010

OSIsoft

1.1 Using PI OLEDB Enterprise 2010

1.1.1 Objectives

At the end of this learning lab, you should be able to:

- Explain what PI OLEDB Enterprise 2010 is.
- Explain how it connects to the PI Server.
- Perform simple queries.
- Become familiar with the PI SQL Commander tool.

1.1.2 Problem Description

PI OLEDB Enterprise 2010 is an OLE DB data provider you can use to access asset metadata stored in the PI Asset Framework (AF). PI OLEDB Enterprise 2010 supports read-only access to AF Server data. Only the AF Asset namespaces are exposed.

PI OLEDB Enterprise 2010 also provides read-only access to data from PI Servers, since AF Attributes can be configured to reference PI points. PI OLEDB Enterprise exposes this information through a relational view of AF Databases, which is accessible through SQL queries.

Using the PI SQL Commander tool, you must first explore and become acquainted with the data structure of AF and the PI server. Next perform some simple queries by establishing a connection to AF and running selected sample queries contained in the PI SQL Query Compendium project.

1.1.3 Approach

To do this exercise, you will need to open the PI SQL Commander tool which you can find under the PI System group. Once you open the PI SQL Commander, it should open by default the PI SQL Query Compendium project. Open the Schema explorer to browse and become acquainted with the data structure in AF and the PI server.

Open the sample queries contained in the PI SQL Query Compendium project and run selected queries that display element attributes, time-series data and system information among other results.

Try to do this exercise on your own before proceeding to the step-by-step solution.

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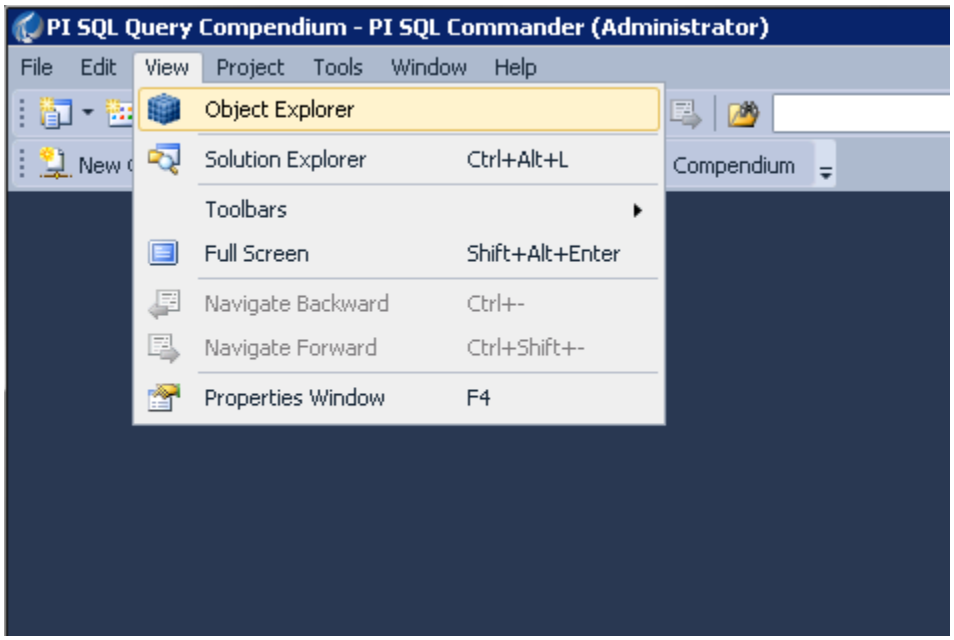
1.1.4 Step-by-Step Solution

Open the PI SQL Commander tool and explore the data structure in AF:

1. Connect to the **PI-CLIENT1** machine
2. Go to the **Desktop**
3. Click on **PI SQL Commander** to open the tool.
4. Click on the **PI SQL Commander** menu.



5. Click on **View > Object Explorer**. You should now see two data sources available, AF and the PI server. Each one of the data sources will list the servers available to connect.
6. Right click on the AF server listed and select **"Connect…"**. You may have to expand the selection of AF Servers if the AF server is not visible.

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7. On the authentication window you can use the default selection of Window Integrated Security (preferred method of connecting) and click **Ok**.

8. Under Catalogs, expand the *PI Big Tires Co* database.

9. Drill down into the database to explore the data structure by expanding the *Asset* folder.

10. Expand the *Tables* folder.

11. Expand the *Element* table.

12. Expand the *Columns* folder to see the fields that are available.

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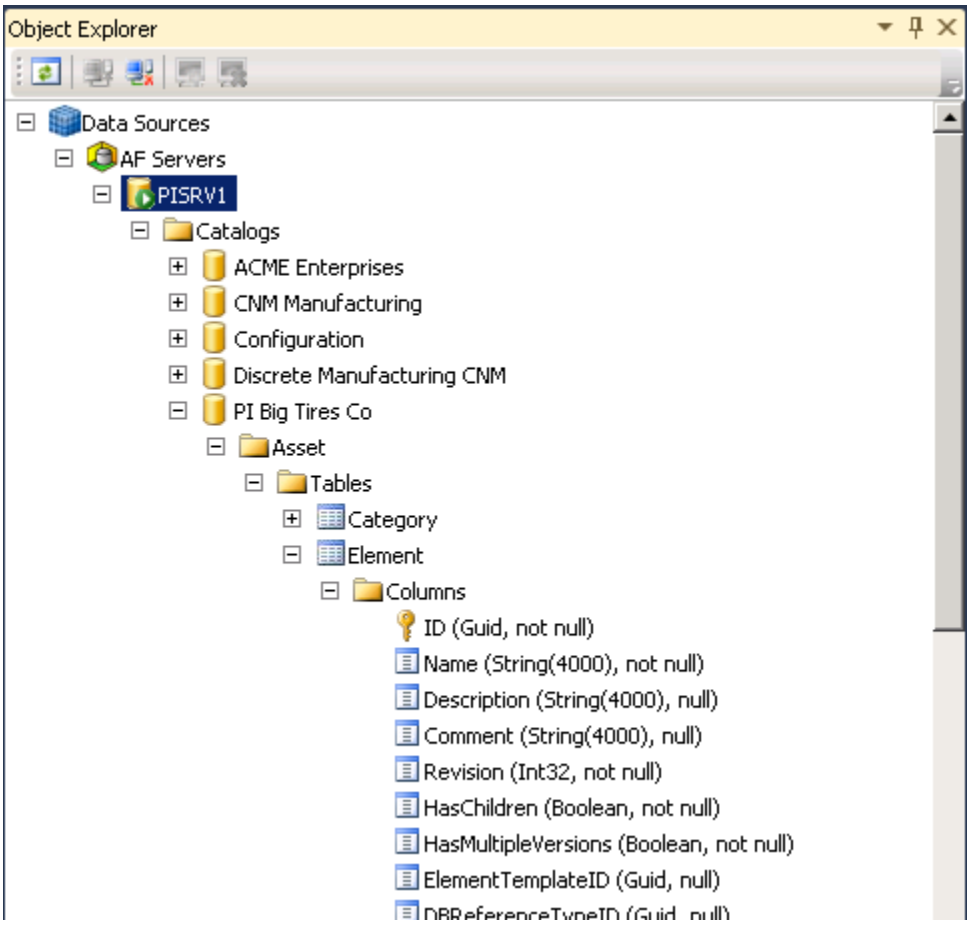

13. Drill down again to inspect the fields available under **Data > Tables > Archive > Columns.**

Explore the data structure in the PI Server:

1. Right click on the PI server listed and select **"Connect…"**. You may have to expand the selection of PI Servers if the PI Server is not visible.

2. On the authentication window you can use the default selection of Window Integrated Security (preferred method of connecting) and click **Ok**.

3. Under Catalogs, expand the piarchive database

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4. Drill down into the database to explore the data structure by expanding the **Tables > piavg > Columns** and inspecting the available fields

5. Drill down into the database by expanding **Tables > pisnapshot > Columns** and examining the fields available in that Table

6. Close the **Object Explorer**.

Perform simple queries:

Note: the PI OLEDB Enterprise 2010 installation includes a project located in `C:\Program Files (x86)\PIPC\OLEDB\Tools\PI SQL Commander\MyProjects\PI SQL Query Compendium` which contains several sample query files. The project is meant as a guide to PI SQL queries and as an introduction to key PI OLEDB Enterprise concepts, it presents the most typical queries, and point you to performance implications of various query representations. Take the time to read the comments included in the query files.

1. On the PI SQL Commander go to **File > Project**.

2. Navigate to the file: **C:\Program Files (x86)\PIPC\OLEDB\Tools\PI SQL Commander\MyProjects\PI SQL Query Compendium\PI SQL Query Compendium.pisqlsln**

3. The **"CurrentElementHierarchy.sql"** should already be open. If this file is not open, open it on the solution explorer docket window by expanding the *Queries > Asset* Database folders.

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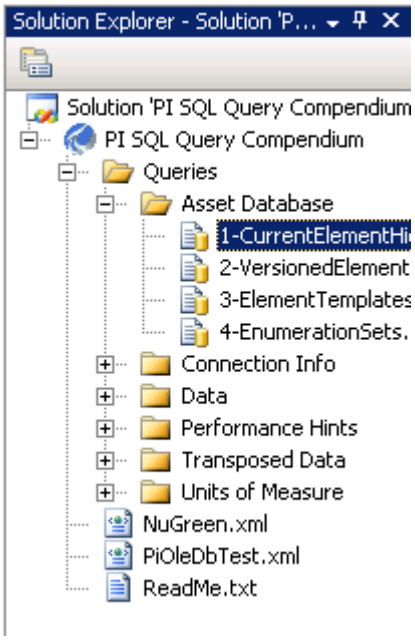

4. Before being able to execute queries a connection must be established

5. Highlight a query on the CurrentElementHierarchy.sql file.

6. Select **"Connection…"**

7. Select **"Connect to AF Server…"**

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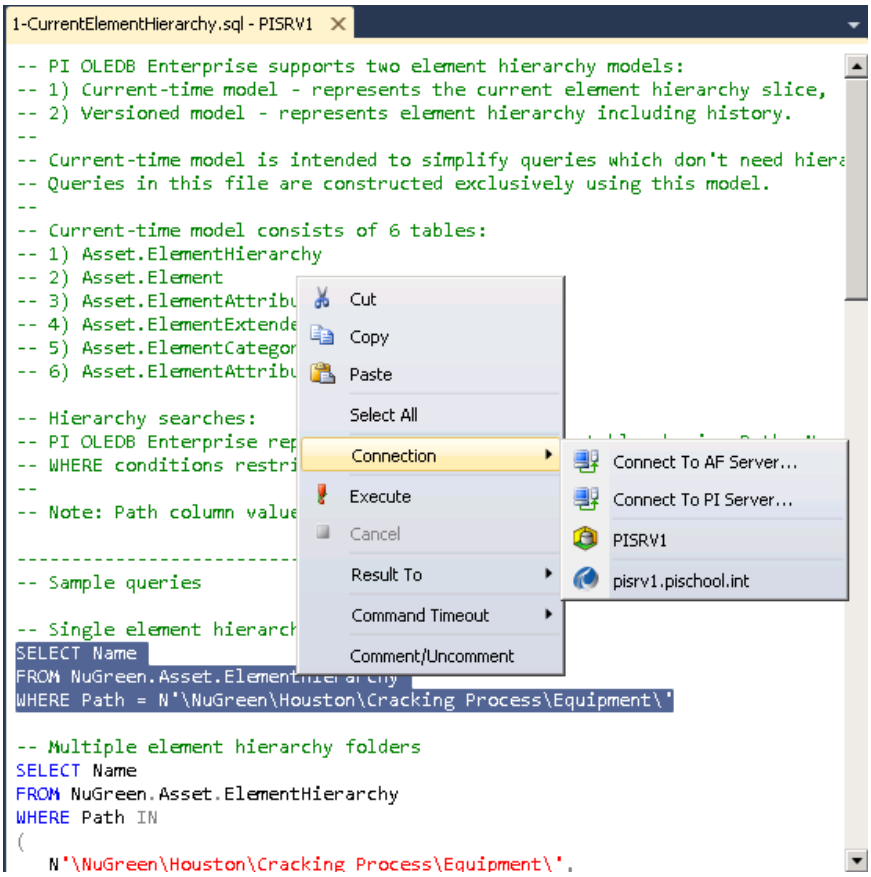

8. On the authentication window you can use the default selection of Window Integrated Security (preferred method of connecting) and click Ok

9. The bottom of the center pane should indicated the status of the connection and the name of the AF server connected to

Note: SQL files in this project contain multiple queries. Before executing a query, you need to select it. To simplify this action, PI SQL Commander offers two commands accessible through the following keyboard shortcuts:

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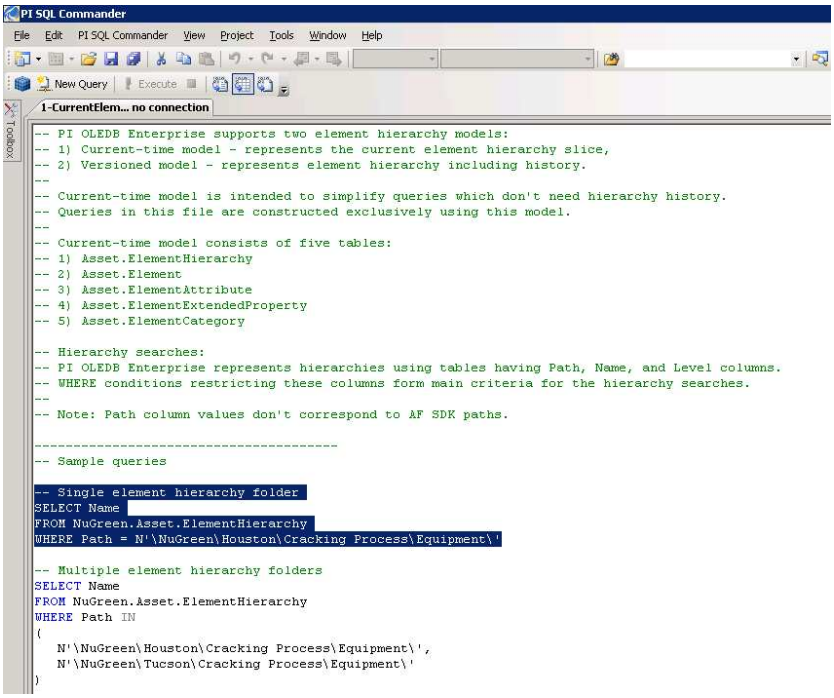
Ctrl+M: selects the command at the current cursor position.

Ctrl+R: selects and executes the command at the current cursor position.

10. Place the cursor in front of the first line that has the "`SELECT NAME`" command

11. Press `ctrl + m`, the entire command will be highlighted



12. Click on **Execute**

13. The results can be examined in the new pane

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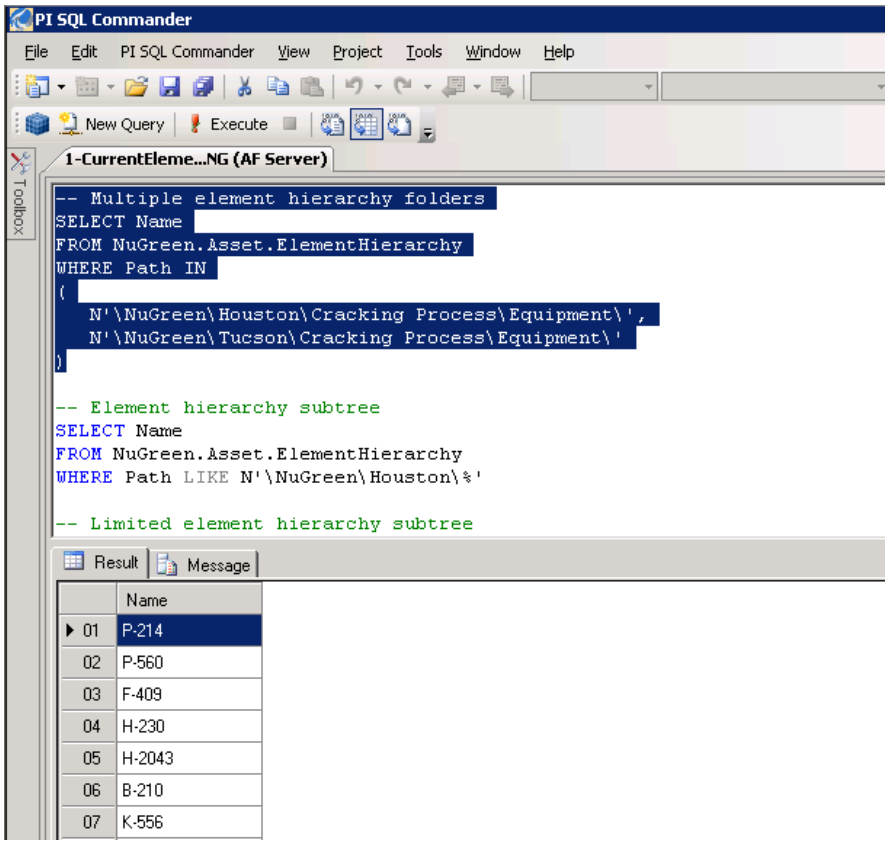
14. Conduct a second query from the same sample file by placing the cursor on the second line that has the "`SELECT NAME`" command

15. Press `ctrl + m`, the entire command will be highlighted

16. Click on **Execute**

17. The new results are display on the bottom pane



18. Open the query file named *"EnumerationSets.sql"* from the Solution Explorer

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19. Place the cursor in front of the second line that has the `"SELECT NAME"` command
20. Press `ctrl + m`, the entire command will be highlighted
21. Click on **Execute**
22. The results can be examined in the new pane
23. Ensure you take the time to read the comments contained in the query files, they contain useful information.
24. Additionally the folders found in C:\Program Files (x86)\PIPC\OLEDB\Tools\PI SQL Commander\MyProjects\PI SQL Query Compendium and the read me files inside them contain important information.

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