

CAXperts

3D DataManager

Quick Reference Guide



Copyright

Copyright © 2005-2009 CAXperts GmbH. All Rights Reserved.

Including software, file formats, and audiovisual displays; may be used pursuant to applicable software license agreement; contains confidential and proprietary information of CAXperts and/or third parties which is protected by copyright law, trade secret law, and international treaty, and may not be provided or otherwise made available without proper authorization.

Restricted Rights Legend

Rights reserved under the copyright laws of the Federal Republic of Germany.

Warranties and Liabilities

All warranties given by CAXperts about equipment or software are set forth in your purchase contract, and nothing stated in, or implied by, this document or its contents shall be considered or deemed a modification or amendment of such warranties. CAXperts believes the information in this publication is accurate as of its publication date.

The information and the software discussed in this document are subject to change without notice and are subject to applicable technical product descriptions. CAXperts is not responsible for any error that may appear in this document.

The software discussed in this document is furnished under a license and may be used or copied only in accordance with the terms of this license. THE USER OF THE SOFTWARE IS EXPECTED TO MAKE THE FINAL EVALUATION AS TO THE USEFULNESS OF THE SOFTWARE IN HIS OWN ENVIRONMENT.

Trademarks

CAXperts is a registered trademark of CAXperts GmbH. Intergraph, the Intergraph logo, SmartSketch, FrameWorks, SmartPlant, INtools, MARIAN, PDS, IGDS, RIS and IntelliShip are registered trademarks of Intergraph Corporation. IGDS file formats ©1987-1994 Intergraph Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. Bentley, the Bentley logo "B," and MicroStation are registered trademarks of Bentley Systems, Inc. ISOGEN is a registered trademark of Alias Limited. Other brands and product names are trademarks of their respective owners.

Contents

| | | |
|----------|---|-----------|
| 1 | Introduction | 2 |
| 1.1 | General Conventions | 2 |
| 1.2 | Typefaces..... | 2 |
| 1.3 | Symbols..... | 3 |
| 2 | Installation | 4 |
| 3 | License..... | 5 |
| 4 | 3D DataManager Extractor | 6 |
| 4.1 | Loading and Setting up a SmartPlant 3D Plant..... | 6 |
| 4.2 | Create SmartPlant Review session..... | 7 |
| 4.3 | Configure Search Filters | 8 |
| 4.4 | Configure Columns/Attributes | 8 |
| 4.5 | Configure Units of Measure..... | 10 |
| 4.6 | Result database..... | 10 |
| | Piping Catalog..... | 11 |
| | Piping | 11 |
| | Equipment | 12 |
| | Structural..... | 12 |
| | HVAC..... | 13 |
| | Electrical | 13 |
| | Plant | 13 |
| 4.7 | Batch Mode | 13 |
| 5 | 3D DataManager Reporter | 15 |
| 5.1 | A Brief Overview | 15 |
| | Elements..... | 15 |
| | Menus and Toolbar..... | 18 |
| 5.2 | Views..... | 21 |
| | Opening a Project..... | 22 |
| | Customizing the Tree Filter..... | 22 |
| | Arranging Views | 24 |
| | Closing and Saving | 30 |
| 5.3 | Reporting..... | 31 |
| 5.4 | Example..... | 34 |
| 6 | 3D DataManager Pro..... | 38 |
| 6.1 | Grid Color Coding..... | 38 |
| 6.2 | Changing a Value | 38 |
| 6.3 | Reset Changes | 39 |
| 6.4 | Previewing Changes..... | 39 |
| 6.5 | Writing Changes..... | 41 |

1 Introduction

The software, **3D DataManager**, consists of two modules. The first, **3D DataManager Extractor**, is designed to export a **SmartPlant 3D** database into a Microsoft Access file, containing one table per task. The resulting records are compressed and internally resolved by code lists. The Access file serves as a base for the second module, the **3D DataManager** user interface, used to create Reports with simple drag 'n drop operations.

Additionally, **3D DataManager** is divided into two versions. The **3D DataManager Reporter** utility is primarily used for reporting, while the other version, the **3D DataManager Pro** Extends the Reporter version with the ability to change Data and write the changes back to Intergraph's **SmartPlant® 3D**

1.1 General Conventions

This document contains many visual cues to help you understand the meaning of certain words or phrases. The use of different fonts for different types of information allows you to scan the document for key concepts or commands. Symbols help abbreviate and identify commonly used words, phrases, or groups of related information

1.2 Typefaces

Italic Indicates a system response, which is an explanation of what the software is doing. For example,

The text is placed in the viewing plane.

Bold Indicates a command name, parameter name, or dialog box title. Command paths are shown using an arrow between command names. For example,

Choose **File > Open** to load a new file.

Sans serif Indicates a system prompt or message, which requires an action be taken by the user. For example,

Select first segment of alignment

Normal typewriter

Indicates an actual file or directory name. For example,

The ASCII report is stored in the layout .rpt file.

Bold typewriter


Indicates what you literally type in. For example,

Key in **original.dat** to load the ASCII file.

1.3 Symbols

This document uses the following symbols to identify special information:

 Note – important supplemental information.

 Map or path – shows you how to get to a specific command or form.

 More information – indicates there is additional or related information.

2 Installation

Requirements:

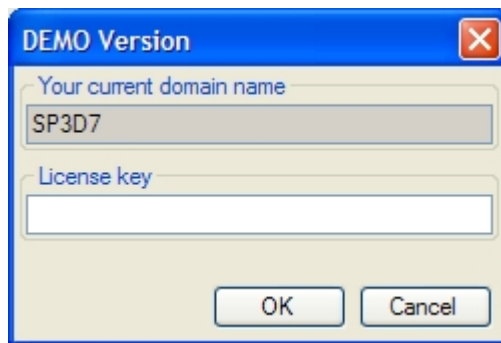
- Operating system: Windows 2000 SP4/XP/2003/Vista
- Intergraph SmartPlant 3D SP4 (7.0.0.44.10) or later
- Microsoft Excel 2000 or later (only for 3D DataManager Reporter)


3 License


There are two different licenses:

- **3D DataManager Reporter:** used to extract **SmartPlant 3D** plant into access in order to make reports
- **3D DataManager Pro:** Extends the **3D DataManager Reporter** features as listed above, and enables the write changes function, which transfers changes made to values in the interface back into **SmartPlant 3D**

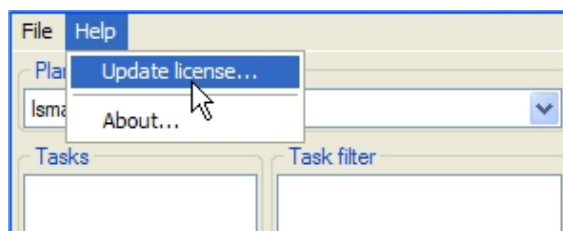
Once the setup has been completed, and the program is started, a license key will be requested, as shown below.




 Note: Without a valid license the software works in demo mode.

 Note: As seen above the domain name is required in order to generate a license key. **3D DataManager** can then be used with the same license key on all computers in the same domain.

If the installed license needs to be updated (i.e. evaluation license) select **Update license...** from the **Help** menu. The dialog box shown above will be displayed again.



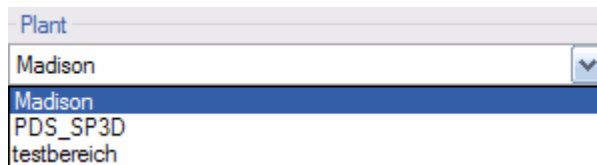
4 3D DataManager Extractor

 Note: 3D DataManager Extractor requires **SmartPlant 3D** and a **SmartPlant 3D (S3D)** license seat on a SmartPlant License Server.


The **3D DataManager Extractor** is used to extract **SmartPlant 3D** data out of an existing project. Since the extractor uses the **SmartPlant 3D API**, it requires **SmartPlant 3D** and a **SmartPlant 3D License seat (S3D)** on a **SmartPlant License server**. Using the API enables the extractor to be installed and used without dealing with any issues from the Database.

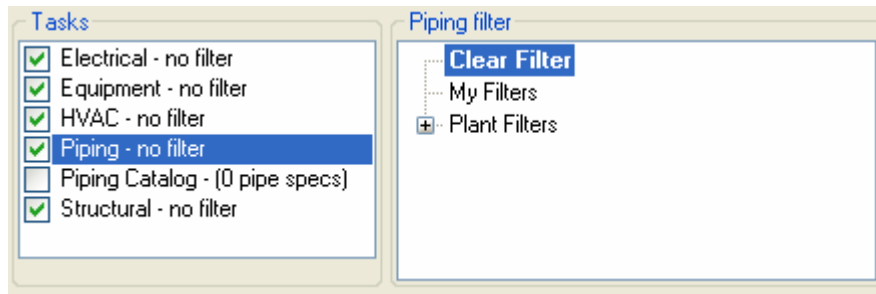
4.1 Loading and Setting up a SmartPlant 3D Plant

Use the **Plant** combo box to select a **SmartPlant 3D** plant.

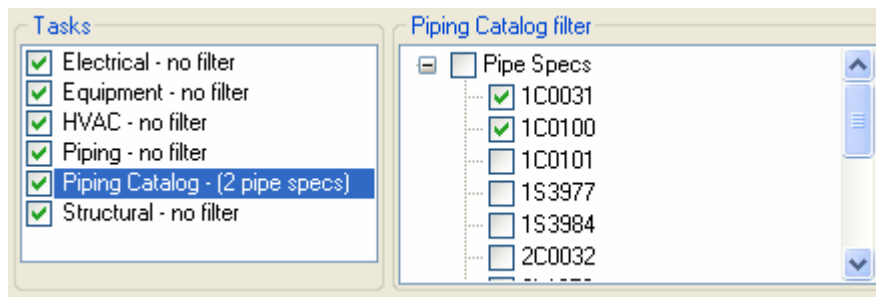



After selecting a Plant, the available Tasks and the associated filters are displayed in the **Tasks** section. Use the tree in the filter section to apply a filter to the selected task.


 Note: Applying the filter will speed up the extraction process



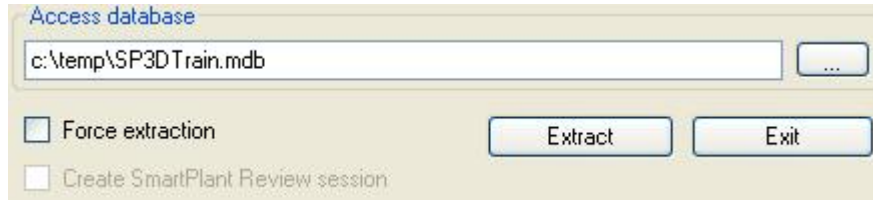
The Equipment-, Piping-, Electrical-, HVAC- and Structural-tasks includes all task-specific data from the plant. The available filters are defined via **SmartPlant 3D**. If checked, the catalog task will extract all the Piping specific data from the catalog to the specified database, during the extraction.



 Note: For each task individual filters can be applied.

 Note: Extracting the Catalog with all available specs selected may lengthen the extraction duration. Keep the Pipe Specs selection to a bare minimum in order to shorten the extraction time

Browse with the () button to create a Microsoft Access Database file where the results will be created.




Force extraction – By default the software processes only changed objects since the last extraction when the switch is disabled (recommended). The data of the last extraction is stored in *.3dm file which is password protected and located in the same directory as result access database. If the *.3dm file doesn't exist or the force extraction switch is enabled, all objects will be extracted from **SmartPlant 3D** this can require a large amount of time.

Create SmartPlant Review session- See [Create SmartPlant Review session](#)

All the settings are stored automatically in the configuration file which is found under **Tools>Settings**.


Start the process by clicking the **Extract** button.


 Note: The progress bar displayed at the bottom right hand side of the window does not display the true progress. It displays the progress for each object in **SmartPlant 3D**. due to this it will load multiple times.

4.2 Create SmartPlant Review session

3D DataManager Extractor allows creation of a Design Review session which can be viewed in **3D DataManager** or in **SmartPlant Review**.

If the checkbox **Create SmartPlant Review session** is enabled the software creates **SmartPlant Review** *.vue file containing the graphical objects from selected tasks (according to the applied filter) and the **SmartPlant Review** database (*.mdb2) with attributes as configured in the "[Configure attributes](#)" menu


 Note: *.vue file can be opened in **SmartPlant Review** 6.2 or higher.


 Note: The *.xml file containing attributes for **SmartPlant Review** sessions, which is typically created upon creation of a **SmartPlant Review** in **SmartPlant 3D**, is not required and not generated, because all attributes for the objects inside of the *.vue file is stored directly in the **SmartPlant Review** database (*.mdb2).

4.3 Configure Search Filters

The search filters menu allows defining **SmartPlant 3D** filters which will be used to check if they contain any of extracted objects. As result the software creates a table named “Object Filters” in resulting access database which has the following format:

| Item Name | Filter Name |
|-----------------------------|----------------|
| Concentric Size Change-0001 | Complete Plant |
| Concentric Size Change-0001 | Area1 |
| Tee-0001 | Complete Plant |

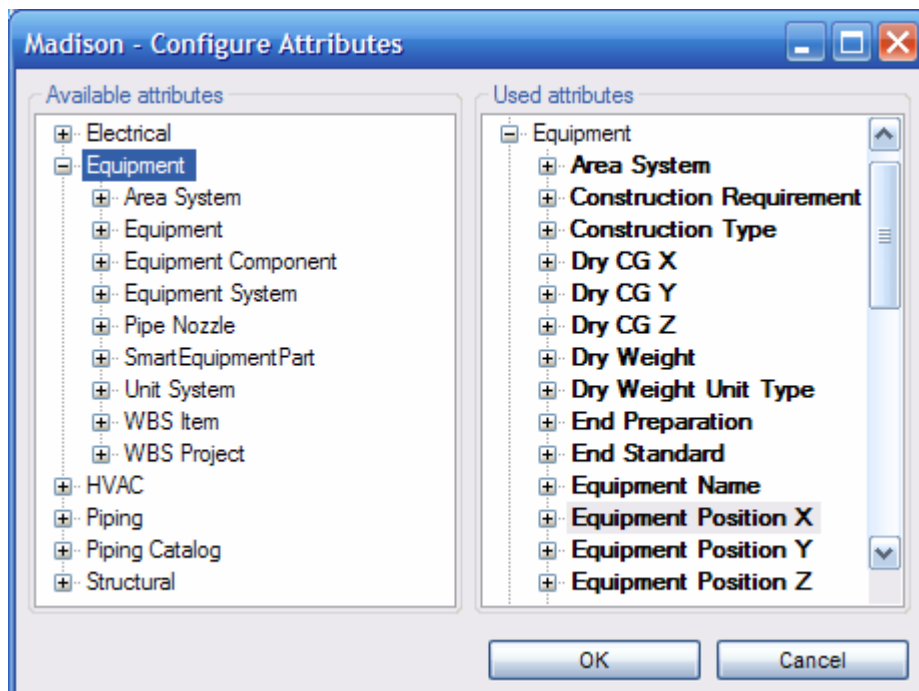
 Note: The table shown above demonstrates a concept only. The resulting database contains the object OID column instead of the Item Name. Any of the attributes for the corresponding object can be queried by joining the “Object Filters” with the proper table (e.g. “Piping” or “Equipment”).

 Note: Selecting many search filters may cause low extraction performance.

4.4 Configure Columns/Attributes

The ability to configure attributes is specifically made in order to configure and add user attributes to the next extraction.

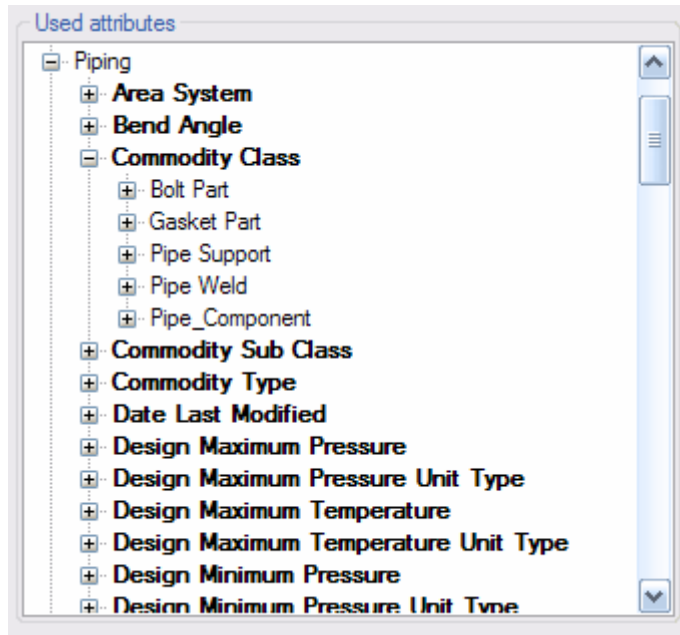
The appearance of the columns in the resulting database can be configured by selecting **Configure attributes...** from the **Tools** menu. The following dialog will be shown:



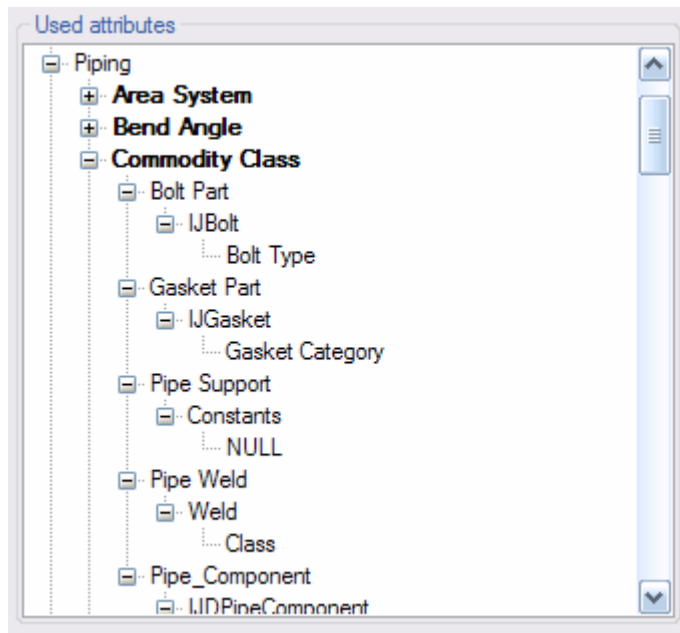
The tree on the right hand side shows the configured columns in a specific task (table). The Objects listed on the left hand side are used as references for the column mapping which is done on the right hand side.

Mapping one or more objects to columns can be done by dragging and dropping a selected object in to the target column.

If you expand the column node in the right tree, you will see the object variants, the column cells can contain.




In the last expansion level the attribute name is listed as shown below.



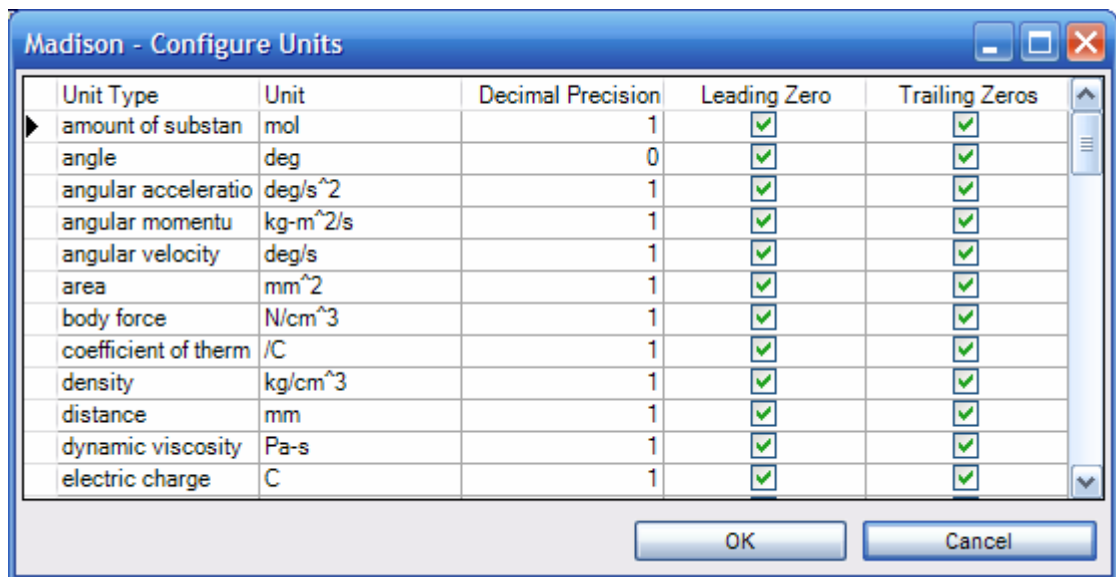
Different attributes can be mapped to a single column as shown above. The attribute that fits to the object type in the current row will be shown. A single column can be removed or renamed by selecting the necessary option in the context menu which is opened by right clicking on a node. The attributes which belong to an object type are listed by ex-

panding the relative object type node. Dragging a single attribute node and dropping it on the (task/table) main node on the right side will map the object to the column.


 Note: The changes will be applied on the next extraction

4.5 Configure Units of Measure

Select **Configure Units ...** from the **Tools** menu to customize the UoM (Units of Measure) settings for the result database. The units of measure are taken for SmartPlant 3D. They directly affect the results of the extraction, since each value is calculated using the set unit type in the grid. For example, a length of a 1000 mm would display 1m in the result database if the distance Unit Type is set to meters.

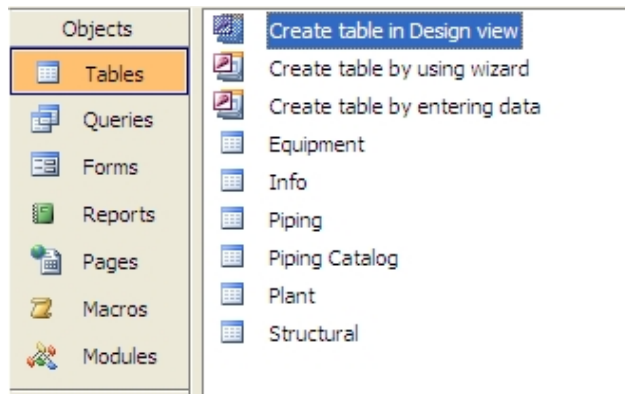


- **Unit Type** – Unit of Measure description
- **Unit** – Measuring unit abbreviation
- **Decimal Precision** – Decimal precision to format the value (decimal count)
- **Leading Zero** – Enable leading zero to format the value
- **Trailing Zeros** – Enable trailing zeros to format the value

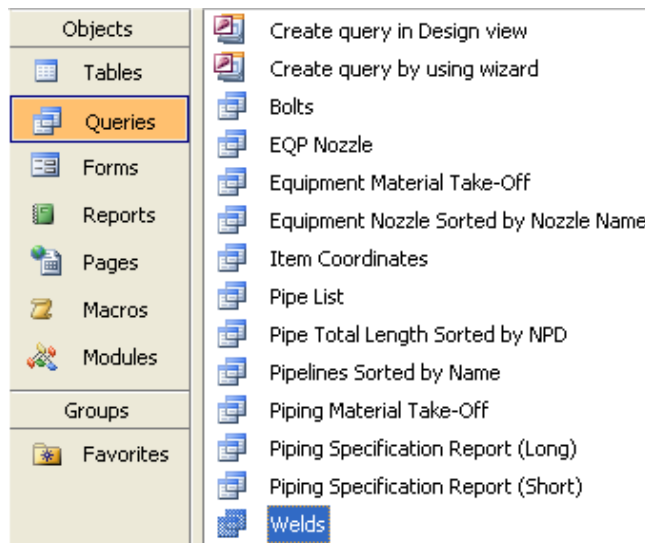
 Note: The changes will be applied on the next extraction

4.6 Result database

The software creates separate tables, with one row per object, for each selected task.



Sample reports and queries are also included in the created Access file.



Piping Catalog

The table contains the following objects:


- PipingCommodityFilter
- BoltSelectionFilter
- GasketSelectionFilter
- NutSelectionFilter
- WasherSelectionFilter

Piping

The table contains the following objects:

- Pipe Part
- Pipe Component
- Implied Part Occurrence
- Pipe Instrument

- Pipe Specialty Item
- Pipe Bolt Set
- Pipe Weld
- Pipe Gasket
- Pipe Supports

 **Note:** The length, surface area and Volume are estimated values that are calculated using basic mathematical formulas. These values are only estimates and should only be used as a reference.

Equipment

The Equipment table contains one row for each nozzle and one additional row for each Equipment/Equipment Component without any nozzles as shown below:

| Equipment | Equipment Component | Nozzle |
|-------------|---------------------|--------|
| Pump | | N1 |
| Pump | | N2 |
| Tank | Ladder | |
| Tank | Platform | |
| Tank | | N1 |
| Tank | | N2 |
| Tank | | N3 |
| Loudspeaker | | |

The table contains the following objects:

- Equipment
- Equipment Component
- Pipe Nozzle

Structural

The table contains the following objects:

- Member Part Prismatic
- Member Part Curve
- Ladder
- Stair

- Handrail
- Assembly Connection
- Footing Component
- Slab

HVAC

The table contains the following object:

- Duct Component

Electrical

The table contains the following objects:

- Cable Tray Component
- Cable Tray Part
- Cableway

Plant

The table includes the information about the plant and database.

4.7 Batch Mode

The **3D DataManager Extractor** can be use in to ways. The conventional way, which has been described up to this point, and a somewhat less conventional way, using a command line as seen below. This function can be used to help automate the exportation of a **SmartPlant 3D** Plant.

Opening the command window is done by clicking the windows start menu, and selecting the run item. Then enter cmd into the text box. This will open the prompt.

To then open the **3D DataManager Extractor** batch mode help type in the installation path of **3D DataManager** followed by "`\3D DataManager Extractor.exe`" `/?`.

```
C:\>"C:\Program Files\CAXperts\3D DataManager\3D DataManager Extractor.exe" /?
```

```
"3D DataManager Extractor.exe" /plant plant_name [/config config_file.ini]
    /plant plant_name      - SmartPlant 3D plant to process
    /config config_file.ini - Config file
```

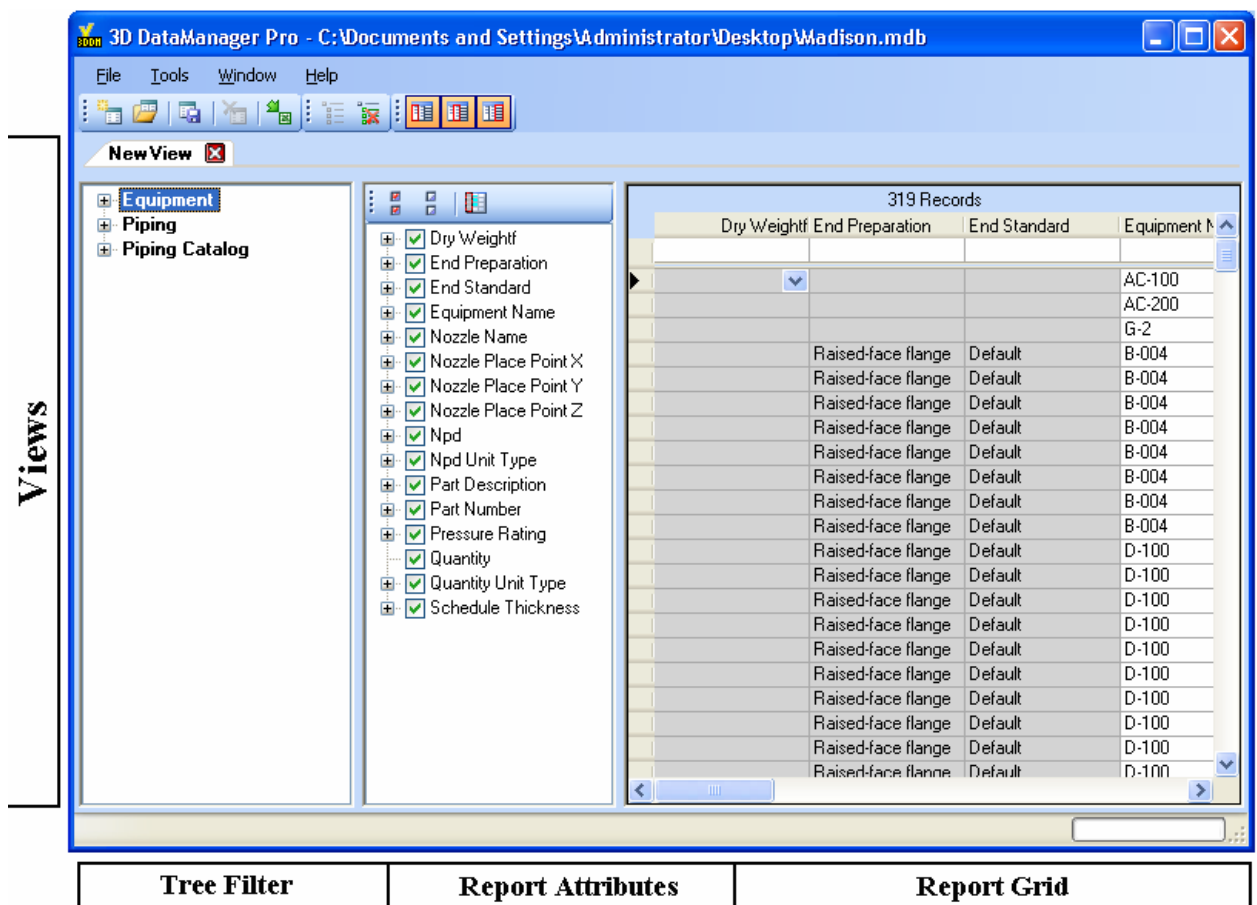
There are two parameters for the **3D DataManager Extractor**. The first is the **SmartPlant 3D** plant name. The other is a configuration file which contains the settings for the extraction. If a configuration file is not defined, the last selected configuration will be used.

5 3D DataManager Reporter



3D DataManager creates queries and easy-to-customize reports based on the Access file which contains the **SmartPlant 3D** data, exported using **3D DataManager Extractor**. The user interface is made in such a way that simple drag 'n drop operations can quickly create, save and export custom reports. On top of all the listed functions, the **3D DataManager Pro** version additionally allows changes to the data in SmartPlant 3D.

5.1 A Brief Overview

The Reporter window is separated into four sections as follows:



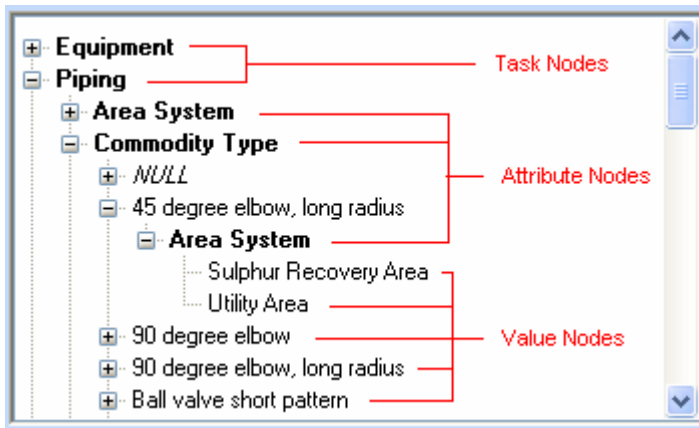
Parts of 3D DataManager

Note: All sections can be resized and the visibility can be toggled. To show or hide a single section use the appropriate buttons (, re-size can be done by moving the bars between the sections () and/or by resizing the window.

Elements

As seen in the figure under [A Brief Overview](#), **3D DataManager** consists of three main parts. Each part performs its own specific function in order to give the best control over **3D DataManager**. The following sections describe each part and function briefly.

Tree Filter



Nodes of the tree view

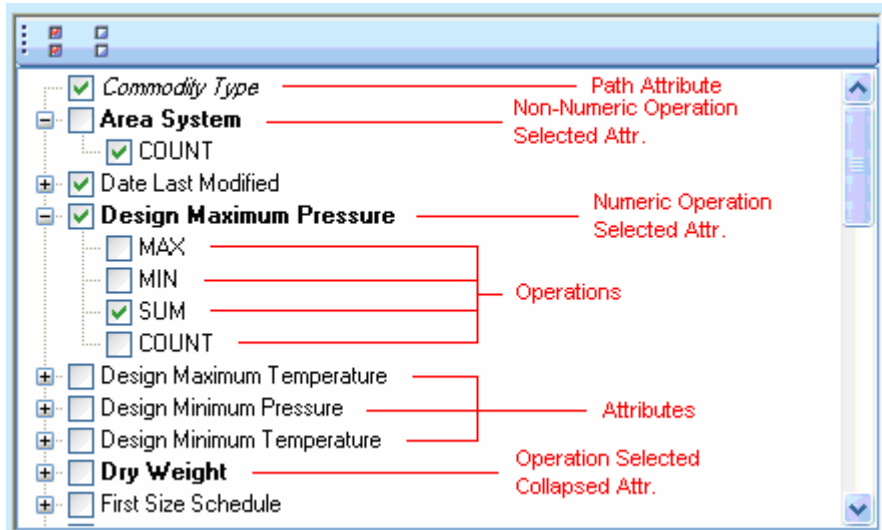
The **Tree Filter** is a visualisation of the **SmartPlant 3D** Database, exported with **3D DataManager Extractor** to an Access Database (see: [Working with 3D DataManager Extractor](#)). Each node listed in the **Tree Filter** is either a table, column or value represented in the Access Database, which in retrospect refer to a task, attribute or value in SmartPlant 3D.

As seen in the above figure, the base nodes are always Task nodes. These Nodes represent each table in the Access Databank, and can be added, or removed with the **Tree Manager** (see [Tree Manager](#)). Task nodes cannot be renamed.

The second node types visible are the Attribute nodes. These nodes can be differentiated from the value nodes by bold text and from the task nodes by position. Attribute nodes are always at the even positions in the tree path. Unlike Value nodes and Table nodes, these nodes can be renamed (see [Context Menus](#)).

The last type of nodes listed in the figure are Value nodes. These represent each possible value for an attribute, and are used as a filter and grouping mechanism for a View (see [Grouping Tree Elements](#)).

Report Attributes



Attribute Statuses

The **Report Attributes** lists all available attributes for the selected task in the **Tree Filter** (see [Tree Filter](#)). Checking or un-checking an attribute adds/removes a column to the **Report Grid** (see [Report Grid](#) and [Arranging Views](#)) while checking Operators adds columns that have influence on its related attributes values.

There are four Operators:

MAX – calculates the maximum value for each row in the **Report Grid**. This Operation cannot be selected with its corresponding attribute.

MIN – calculates the minimum value for each row in the **Report Grid**. This Operation cannot be selected with its corresponding attribute.

SUM – calculates the sum of all values in each row in the **Report Grid**. This is the only value that can be selected with its parent attribute, as it won't create misleading results.

COUNT – displays the number of unique values of the parent attribute for each row in the **Report Grid**. This operation cannot be selected with its corresponding attribute.

Attributes are divided into three types, numeric and date, non-numeric, and Path Attributes. The operators that are allowed for each attribute is determined by the type of attribute. Numeric attributes have all Operators unless the attribute is also in the path, then it only has a sum. Non-numeric attributes only enable **COUNT** operations. Attributes with checked operators are shown in bold print.

Path Attributes are shown in italics. They refer to attributes that are in the current path of the selected node in the **Tree Filter**, and are used to group and/or filter in the **Report Grid**. **Path Attributes** cannot be un-checked, instead have to be unselected in the **Tree Filter**.

Report Grid

| 30 Records | | | | | |
|--------------------|---------------------|----------|----------|-----------|-----------------|
| Part Number | Part Description | Quantity | Quantity | Unit Type | SUM_of_Dry Weig |
| ▶ CESVessel2Platf | SimVerVessel 3 | 6.0 | pcs | | 4440.0 |
| ComplexHorizontal | ComHorCyVessel | 3.0 | pcs | | 0.0 |
| E205Aasm | | 8.0 | pcs | | |
| ElecEnclosure 423 | Type 1 Electrical E | 11.0 | pcs | | 468.6 |
| ElecEnclosureAasm | | 1.0 | pcs | | |
| ElectricalPendant0 | N7 - LIGHTING, P | 10.0 | pcs | | 0.0 |
| HCPump04 3'x2'- | Horizontal Centrifu | 14.0 | pcs | | 7476.0 |
| HCPump05 8'x4'- | Horizontal Centrifu | 12.0 | pcs | | 6408.0 |
| Heat Exchanger S | Shell & Tube Heat | 2.0 | pcs | | 1480.0 |
| Heat Exchanger S | Shell & Tube Heat | 6.0 | pcs | | 4440.0 |
| HoriShellTubeExc | Horizontal Shell & | 28.0 | pcs | | 0.0 |
| HoriShellTubeExc | | 18.0 | pcs | | |
| HorizontalDrum 01 | Horizontal Drum wi | 28.0 | pcs | | 20720.0 |
| HorizontalDrumAs | | 37.0 | pcs | | |
| KettleHeatExchan | | 12.0 | pcs | | |
| Loading_Dock | Loading Dock | 1.0 | pcs | | 300.0 |
| PUMP 001A_IMP- | Centrifugal Pump, | 24.0 | pcs | | 17760.0 |
| PUMP 001AM-E | Centrifugal Pump, | 2.0 | pcs | | 1480.0 |
| Receptacle01-E | Electrical Recepta | 2.0 | pcs | | 0.0 |
| SimpleVerCylEqpL | | 4.0 | pcs | | |

Report Grid

The **Report Grid** Displays the Data that is selected by the two other components, the **Tree Filter** and the **Report Attributes**, in a standard table format. All columns shown are created from the selections in the **Report Attributes**.

The **Report Grid** has three types of columns, which are similar to the Report Attribute columns, the Path Column, the Operator Column and the Attribute Column. Each type of column is created by selecting a certain type of node in the **Report Attributes**.

Path columns are shown in italics and if they have a value selected in the **Tree Filters** are not filterable. Filters can be applied to all other columns, and other functions such as sorting can be done in this view (see [Grid Functions](#)).

Menus and Toolbar

There are a wide variety of toolbars and Menus in **3D DataManager** The following will show a brief explanation of those and where to find them.

Main Menu











The menu bar contains four drop-down menus as follows:

- **File** – Open Project, Load/Save Views
- **Tools** – **Tree Manager** (configure visibility of nodes in the tree), Settings
- **View** – change the visibility of sections or toolbars

- **Help** – open this **3D DataManager** help, update the licence or open the **About** box

Toolbar Buttons

The Toolbar allows faster access to the most important functions from the menu.

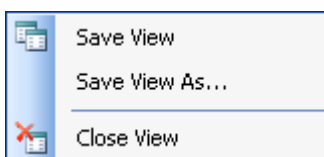
-  - Add a new view.
-  - Opens an existing view.
-  - Saves current view.
-  - Close the selected view.
-  - Export the report currently shown in the grid into a Microsoft Excel worksheet.
-  - Adds all attributes available to for the selected node.
-  - Removes all attributes below the selected node.
-  - Shows or Hides the **Tree Filter**.
-  - Shows or Hides the **Report Attributes** section.
-  - Shows or Hides the **Report Grid**.

Context Menus

There are four Context Menus, one for each section of **3D DataManager**. The Menus are opened by right clicking on the associated item. All functions which are in each related menu can be found in the Menu bar and/or as a toolbar button. The different Menus are as follows:

View Context Menu


The View Menu is opened by right clicking on a View Tab. Possible operations are as follows:



Save View – Saves the current selected View. If the selected View has not been saved before, opens the **Save As** dialog.

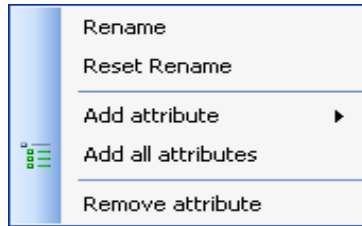
Save View As – Saves the View under a certain file name.

Close View – Closes the selected View

 Note: There must be one View at all times, the last view cannot be closed.

Node Context Menu

For each node in the **Tree Filter** a context menu can be opened by clicking the right mouse button.



Rename – Renames the target Attribute Node. This is only visible with attribute nodes.


Reset Rename – Sets the Attribute node name back to the original name. This is only visible with attribute nodes.

Add attribute – Opens a popup menu listing all un-added attributes. Selecting one adds it to the selected node.

Add all attributes – Add all available attributes to the selected node

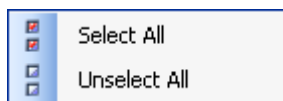
Remove attribute – Removes the selected node representing an attribute. This is only visible with attribute nodes.

Remove all attributes – Remove all attributes assigned under the selected node. . This is visible for all non-attribute nodes.

 Note: Many context menu actions can be done with mouse actions such as Drag ‘n Drop or clicks


Attribute Context Menu

The Attribute Context Menu is opened by right clicking the **Report Attributes**. Actions available are as follows:



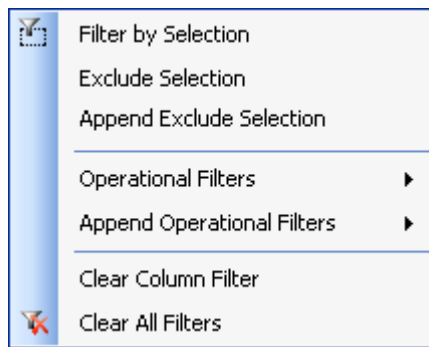
Select All – Selects all attribute nodes

Unselect All – unselects all attribute nodes, including operator nodes.

 Note: Unselecting will not affect the path nodes

Grid Context Menu

The Context menu shown below is the first and primary way to filter. Right click on a cell in the grid to open it.



Filter by Selection – Sets the column filter to the current value in the selected grid cell.

Exclude Selection – Sets the current column filter to exclude the value in the selected grid cell.

Append Exclude Selection – Excludes the current value in addition to the current value(s) in the filter. This option is only enabled if the column has been filtered by exclusion.

Operational Filters – these filters are only available for numeric and date/time columns. The popup menu contains filters for ‘Greater than’, ‘Less than’, ‘Greater than or equal to’, and ‘Less than or equal to’, all are relative to the current selected grid cell.

Append Operational filters – These Filters are only available for numerical or date/time columns and if a previous operational filter has been set in the current column. This option enables the possibility to filter for values between two values.

Clear Column Filter – clears the current column filter in which the selected grid cell resides.

Clear All Filters – Resets all the filters in the grid. With the exception of filters set in path columns (see [Report Grid](#))

It is also possible to filter by selecting an item from the filter combo box at the top of each column (see [Filtering](#))

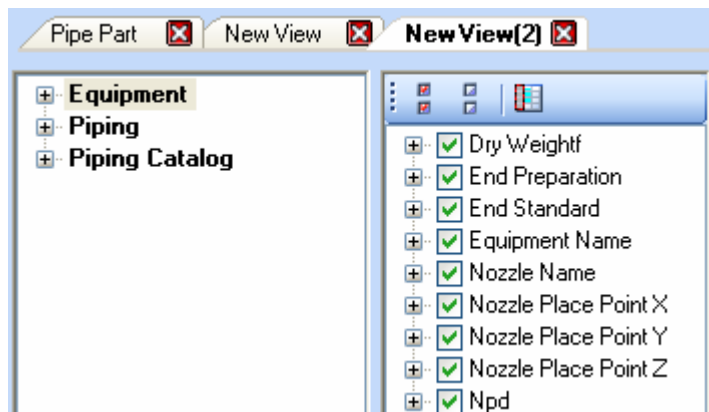
Status bar and Log

The status bar at the bottom of the Window Displays the current actions made in the program. Double clicking on it will open the log in which all actions and errors are saved.

The Log File can be found under the Temp directory on the current computer under the 3D DataManager folder.

5.2 Views

Views are saved program states and are visible as tabs above the tree, attributes and grid (see below).



Opening a View can be done in two ways, first, in the file menu, and secondly with the toolbar button (📁). Multiple Views can be opened at the same time. Each view is displayed as a tab as seen above.

Creating a new view can be done just as easily, this also has a menu item in the File menu, and a toolbar button (📁).

Closing a View is done with the same methods as listed above and additionally with a context menu which is opened by right clicking a tab. The toolbar button icon is 🗑️.

Views also have the Save (💾), Save As (💾), and the Save All function, which can be found in one or more of the above mentioned Menu or toolbars. Saving writes changes to a view into a 3D DataManager View File (.cvf). After saving, this file can be opened with any Project.

📌 Note: When opening a view, make sure, that the project used to open it has the required tasks and attributes. Otherwise 3D DataManager will not open the view.

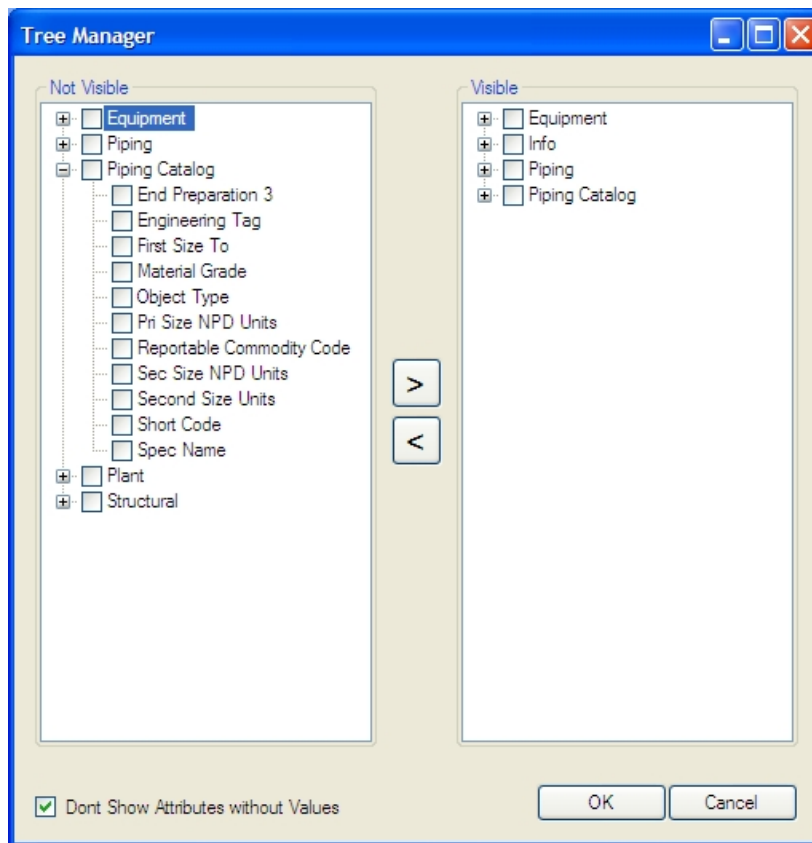
Opening a Project



When 3D DataManager is opened for the first time, the open project dialog will appear. Select a **Microsoft Access** database file previously created with **3D DataManager Extractor in the dialog to load it**. This project will be opened automatically on the following start. To open a different project, select the **Open project...** option from the **File** menu.


📌 Note: It is possible to disable the automatic opening of the last project in the settings, under the tools menu.


Customizing the Tree Filter

Select **Tree Manager...** from the **Tools** menu. The following dialog box appears.

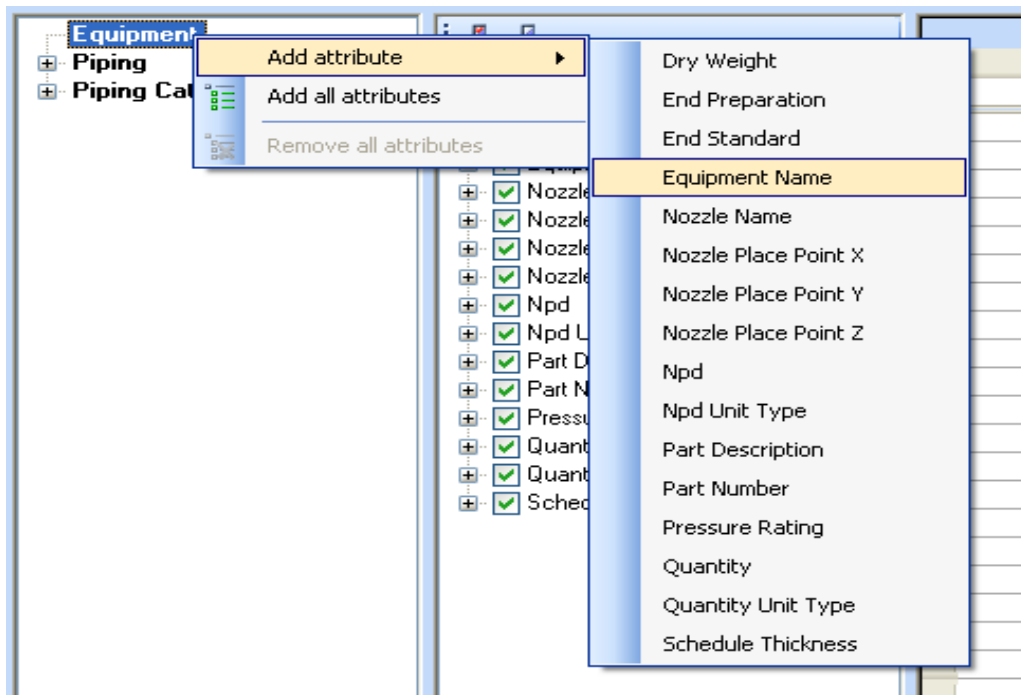


Expanding a task node will list all available attribute nodes. Select the required attributes by checking the preceding checkbox. Press the Add button () to add the selected nodes to the visible **Report Attributes**. Click on the  button to remove selected attributes from the left tree, after selecting them. Press the OK button to apply the changes. The **Don't Show Attributes without Values** check box enables or disables attributes under all Task Nodes which have no values in the database.

 Note: A maximum of 50 attributes is the limit for one table (visible main node).

 Note: Hovering over an attribute node will display the first 10 values of that attribute in a tooltip.

The attributes newly added won't be visible straight away. Open the context menu of the main node by clicking it with the right mouse button and select **add all attributes** or use the equivalent toolbar button or a specific attribute from the list (**Add attribute**). To remove attributes for the purpose of clearness, select Remove attribute from the context menu of the desired attribute node. Removing an attribute can also be done by dragging it to its task node.



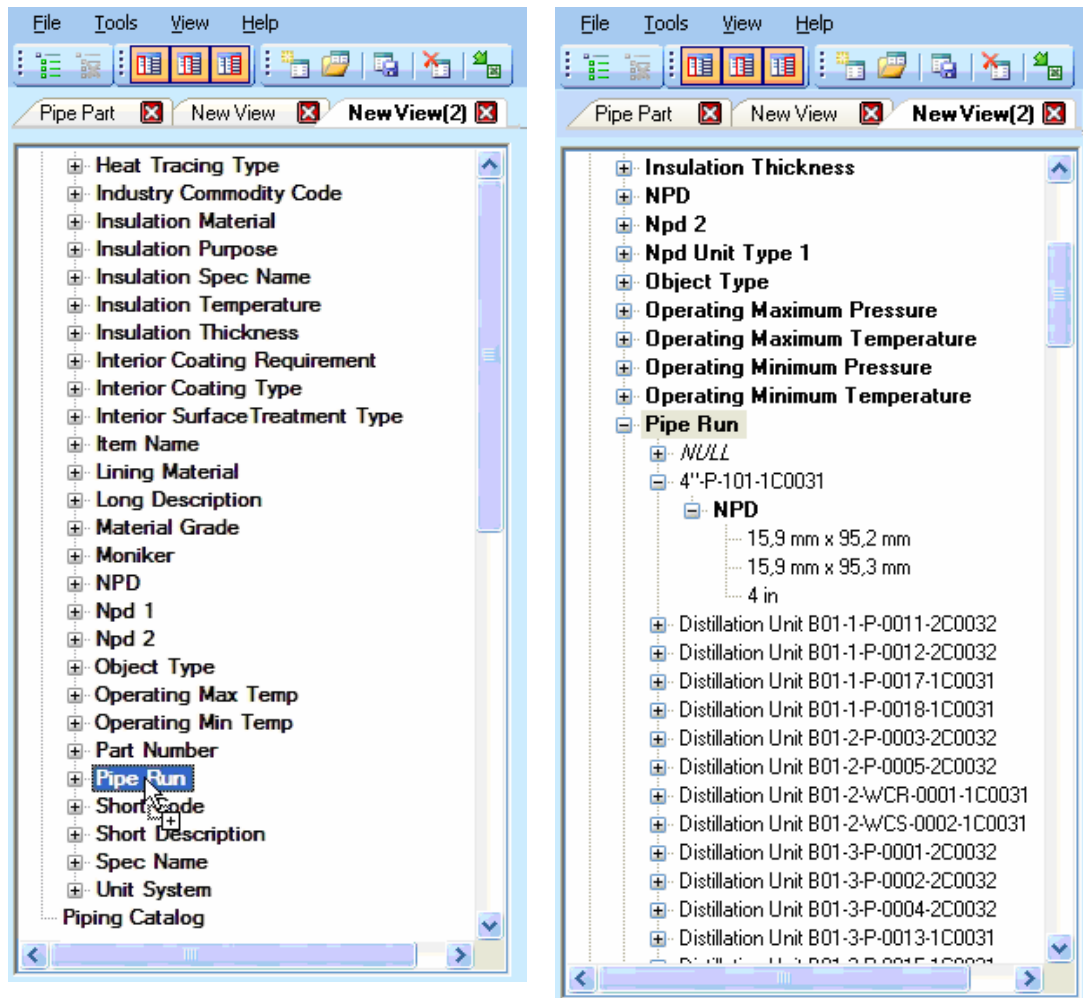
Arranging Views

Arranging the views is the main purpose of 3D DataManager. In order to keep the process simple, all actions can be done with a mouse. The following chapters will help setting up each view part by part. All changes listed here are saved to a View file when saving the View.

Filter and Grouping functionality

The **Tree Filter** can be used to filter and group the tree and so the report. For this purpose the desired nodes may be nested. If you want, for example, see the different **Nominal Pipe Diameters** in the tree that are used for a specific **Pipe Run** follow the steps below:

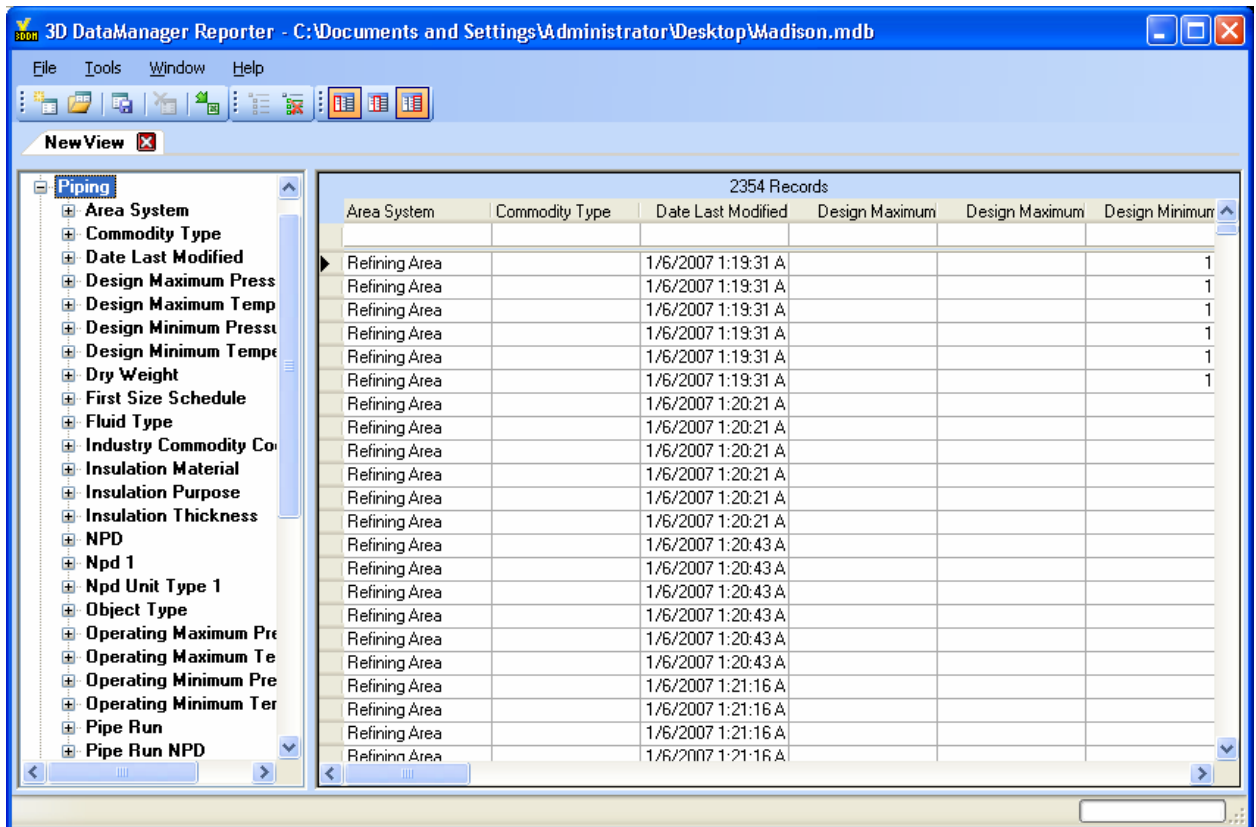
1. Grab and drag the **NPD** node on the **Pipe Run** node.
2. Drop the node and expand the sub-node.
Only the desired attribute nodes will be shown.




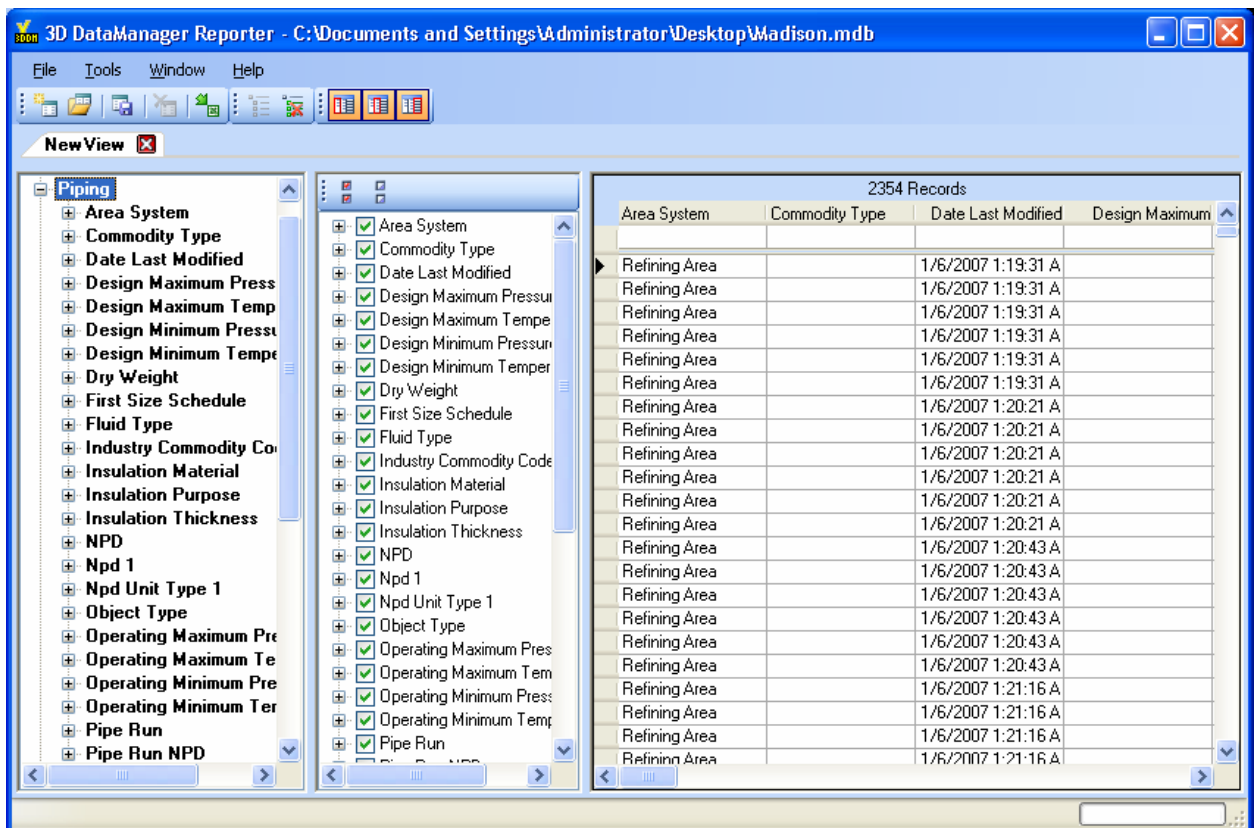
This process can be repeated recursively until the desired granularity has been reached.



Column-attributes configuration

For the currently selected node a report will be shown in the grid view of the Report section like shown below.





This report can be expanded and grouped through further attributes as mentioned in chapter [Filter and grouping functionality](#) above. By default all available columns for the currently selected node are shown. Click the  button to show the attribute/column configuration section and select the columns to add or remove.



With the buttons on top of the **Attribute section** all items can be checked () or unchecked ().

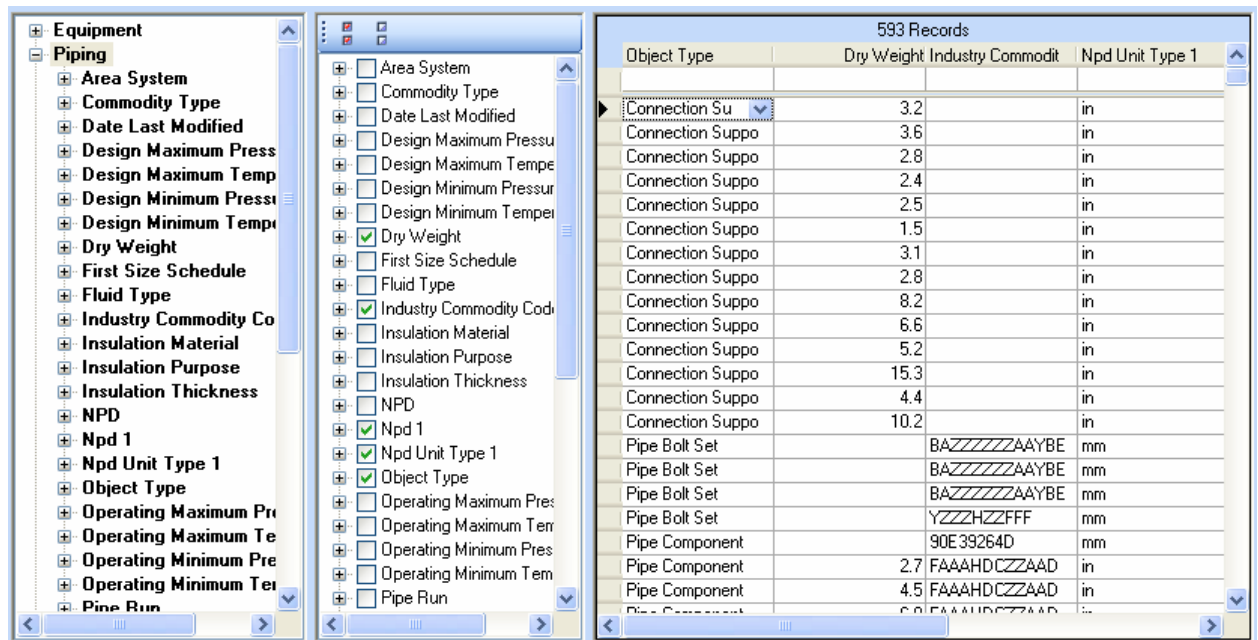
Certain Attribute operations can be used, represented by the sub nodes in the **Report Attributes**. Currently **MIN**, **MAX**, **SUM** and **COUNT** are implemented. When enabled, a column per enabled function shows the result.

 Note: **MIN**, **MAX** and **SUM** are only available for numeric attributes.

 Note: The order of columns shown in “Attributes Section” is alphabetical and does not correspond to the order of columns shown in the grid. Adding/Enabling one additional column will append the column at the end of the grid.

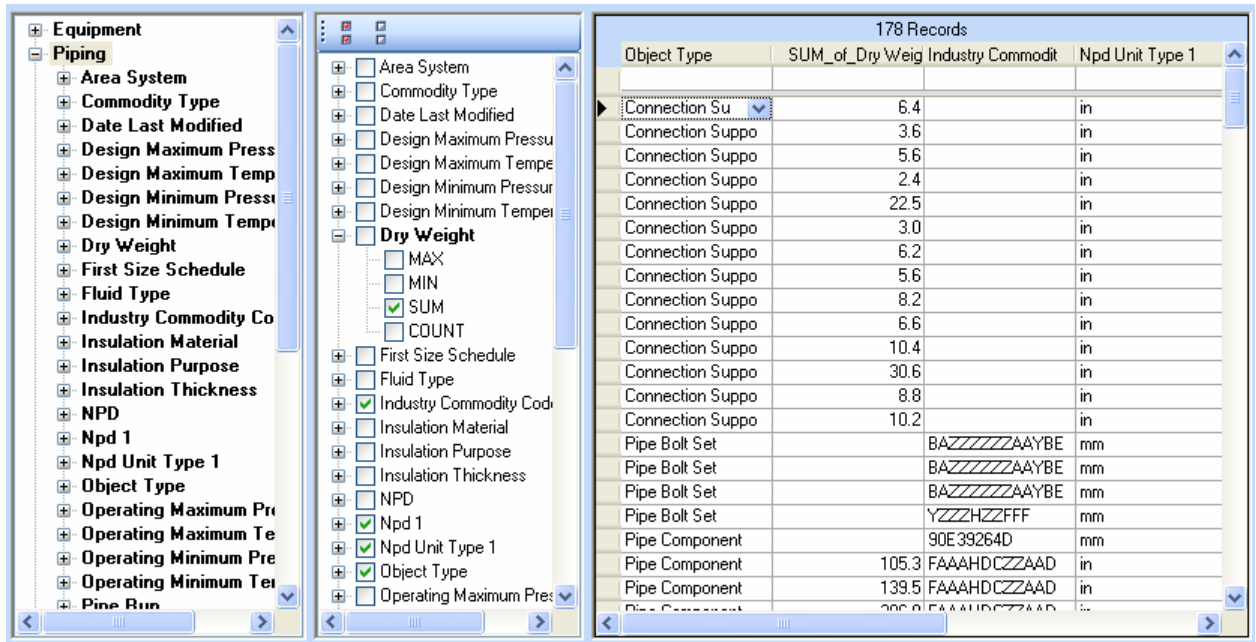
Example:

Grid view without functions



| 593 Records | | | |
|------------------|------------|--------------------|-----------------|
| Object Type | Dry Weight | Industry Commodity | Npd Unit Type 1 |
| Connection Su | 3.2 | | in |
| Connection Suppo | 3.6 | | in |
| Connection Suppo | 2.8 | | in |
| Connection Suppo | 2.4 | | in |
| Connection Suppo | 2.5 | | in |
| Connection Suppo | 1.5 | | in |
| Connection Suppo | 3.1 | | in |
| Connection Suppo | 2.8 | | in |
| Connection Suppo | 8.2 | | in |
| Connection Suppo | 6.6 | | in |
| Connection Suppo | 5.2 | | in |
| Connection Suppo | 15.3 | | in |
| Connection Suppo | 4.4 | | in |
| Connection Suppo | 10.2 | | in |
| Pipe Bolt Set | | BAZZZZZAAYBE | mm |
| Pipe Bolt Set | | BAZZZZZAAYBE | mm |
| Pipe Bolt Set | | BAZZZZZAAYBE | mm |
| Pipe Bolt Set | | YZZZHZZFFF | mm |
| Pipe Component | | 90E39264D | mm |
| Pipe Component | 2.7 | FAAAHDCZZAAD | in |
| Pipe Component | 4.5 | FAAAHDCZZAAD | in |
| Pipe Component | 6.8 | FAAAHDCZZAAD | in |

Grid view with **SUM** enabled for Dry Weight column

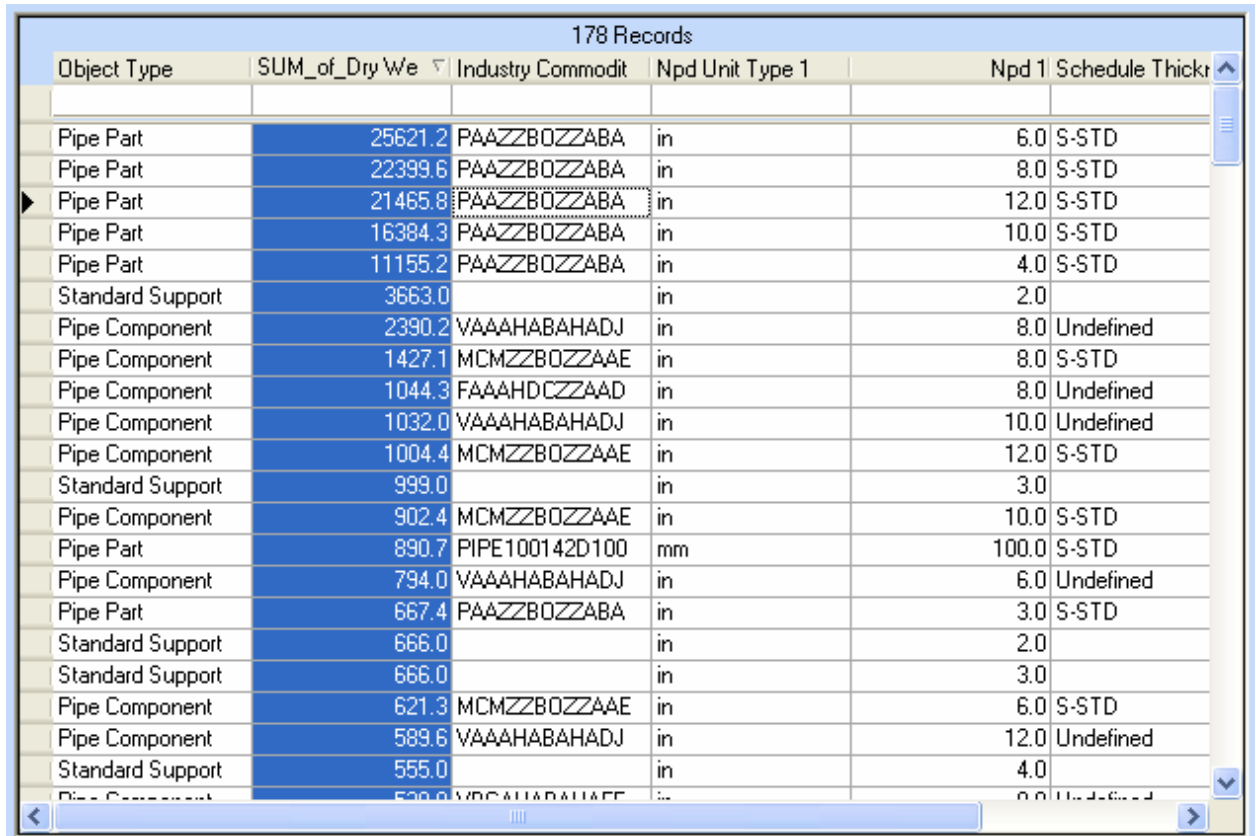


Grid customizing and filter functions

Within the grid, columns can be moved, sorted and filtered.

Sorting

Click the column header to sort the row ascending and once more in descending order.



Reordering

Grab and drag the column you want to move and drop it to its new location (marked by a red arrow).

178 Records

| A_of_Dry We | Industry Commodity | Npd Unit Type 1 | Npd 1 | Schedule Thicknes | Short Material Des |
|-------------|--------------------|-----------------|-------|-------------------|---------------------|
| 25621.2 | PAAZZBOZZABA | in | 6.0 | S-STD | Pipe, S-STD, BE, |
| 22399.6 | PAAZZBOZZABA | in | 8.0 | S-STD | Pipe, S-STD, BE, |
| 21465.8 | PAAZZBOZZABA | in | 12.0 | S-STD | Pipe, S-STD, BE, |
| 16384.3 | PAAZZBOZZABA | in | 10.0 | S-STD | Pipe, S-STD, BE, |
| 11155.2 | PAAZZBOZZABA | in | 4.0 | S-STD | Pipe, S-STD, BE, |
| 3663.0 | | in | 2.0 | | Anvil 1/2 in Standa |
| 2390.2 | VAAAHAHAHADJ | in | 8.0 | Undefined | Gate valve, CL150 |
| 1427.1 | MCMZZBOZZAAE | in | 8.0 | S-STD | 90 deg LR elbow, [|
| 1044.3 | FAAAHDCZZAAD | in | 8.0 | Undefined | Flange, CL150, RF |
| 1032.0 | VAAAHAHAHADJ | in | 10.0 | Undefined | Gate valve, CL150 |
| 1004.4 | MCMZZBOZZAAE | in | 12.0 | S-STD | 90 deg LR elbow, [|
| 999.0 | | in | 3.0 | | Anvil FIG295 3 in |
| 902.4 | MCMZZBOZZAAE | in | 10.0 | S-STD | 90 deg LR elbow, [|
| 890.7 | PIPE100142D100 | mm | 100.0 | S-STD | Pipe, S-STD, BE |
| 794.0 | VAAAHAHAHADJ | in | 6.0 | Undefined | Gate valve, CL150 |
| 667.4 | PAAZZBOZZABA | in | 3.0 | S-STD | Pipe, S-STD, BE, |
| 666.0 | | in | 2.0 | | Anvil FIG140 1/2 in |
| 666.0 | | in | 3.0 | | Anvil 1/2 in Standa |
| 621.3 | MCMZZBOZZAAE | in | 6.0 | S-STD | 90 deg LR elbow, [|
| 589.6 | VAAAHAHAHADJ | in | 12.0 | Undefined | Gate valve, CL150 |
| 555.0 | | in | 4.0 | | Anvil 1/2 in Standa |
| 530.0 | VAAAHAHAHADJ | in | 8.0 | Undefined | Gate valve, CL150 |

Filtering

MIN_of_Npd 2

Clear Filter

NULL

NOT-NULL

1

1.5

2

4

The **NULL** Value will filter for all empty values in the column, while the **NOT-NULL** does the opposite.

It is also possible to filter by manually typing into the Filter field. Possible operators while manually filtering include '<', '>', '<=', '>=', '<>', '*', or '%'. It is also possible to use the && (and) conjunction to place multiple filters for the same column.

Note: '*' and '%' can be used interchangeably, they can be used before text, after text or both but not in text i.e.
 Valid uses: S*, *S or *S*
 Non-Valid use: S*S

■ Note: Filters are not case sensitive, with the exception of NULL and NOT-NULL. Thus is it possible to filter for the value null.

■ Note: One additional filter method is available only in 3D DataManager Pro (see [Previewing Changes](#)).

Resizing

It is possible to resize each column in the Report Grid as seen below. There are two possibilities to do this.

| 178 Records | | | | | |
|----------------------------|-------------------|-------------------------|------|-----|-----------------|
| Object Type | SUM_of_Dry Weight | Industry Commodity Code | Npd | Npd | Schedule Thickn |
| Standard Support Component | 12.4 | | 10.0 | in | |
| Pipe Component | | 90E39264D | 100. | mm | S-STD |
| Pipe Bolt Set | | BAZZZZZZAAYBETZZUS | 15.9 | mm | |
| Pipe Bolt Set | | BAZZZZZZAAYBETZZUS | 19.1 | mm | |
| Pipe Bolt Set | | BAZZZZZZAAYBETZZUS | 22.2 | mm | |
| Pipe Component | 105.3 | FAAAHDCZZAADABQZZUS | 2.0 | in | Undefined |
| Pipe Component | 139.5 | FAAAHDCZZAADABQZZUS | 3.0 | in | Undefined |
| Pipe Component | 306.0 | FAAAHDCZZAADABQZZUS | 4.0 | in | Undefined |
| Pipe Component | 425.1 | FAAAHDCZZAADABQZZUS | 6.0 | in | Undefined |
| Pipe Component | 1044.3 | FAAAHDCZZAADABQZZUS | 8.0 | in | Undefined |
| Pipe Component | 519.2 | FAAAHDCZZAADABQZZUS | 10.0 | in | Undefined |
| Pipe Component | 435.6 | FAAAHDCZZAADABQZZUS | 12.0 | in | Undefined |
| Pipe Component | 32.8 | FAAAMDCCZAADABQZZUS | 2.0 | in | Undefined |
| Pipe Component | 136.0 | FAAAMDCCZAADABQZZUS | 3.0 | in | Undefined |
| Pipe Component | 22.6 | FAAAMDCCZAADABQZZUS | 4.0 | in | Undefined |
| Pipe Component | 38.2 | FAAAMDCCZAADABQZZUS | 6.0 | in | Undefined |
| Pipe Component | | FS035B150AG | 100. | mm | Undefined |
| Pipe Gasket | | GMAHACABXBEPUS | 2.0 | in | |
| Pipe Gasket | | GMAHACABXBEPUS | 3.0 | in | |
| Pipe Gasket | | GMAHACABXBEPUS | 4.0 | in | |
| Pipe Gasket | | GMAHACABXBEPUS | 6.0 | in | |
| Pipe Gasket | | GMAHACABXBEPUS | 8.0 | in | |

The first possibility is to drag the space between columns to the right in order to increase the size, and to the left in order to decrease the size. There is also the possibility to auto size each column to the largest value. This is done by simply double clicking the space between the columns.

Closing and Saving

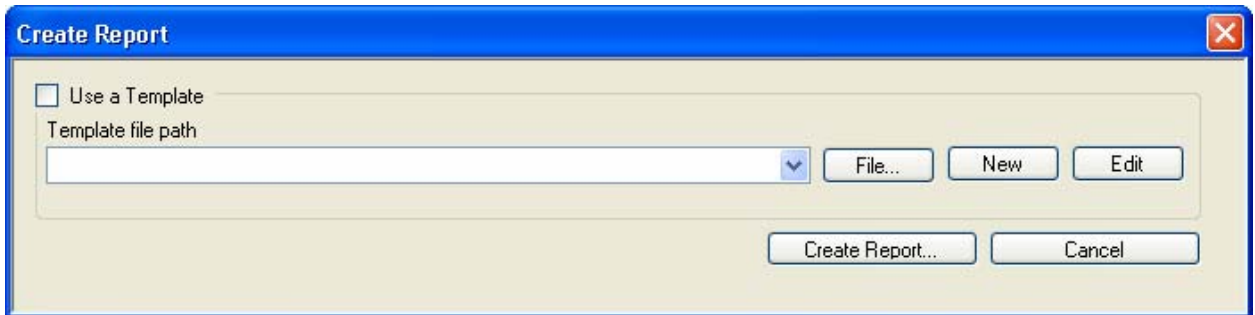
Closing a view can be done by right clicking on the tab to open the context menu, then selection of the close view option (see [View Context Menu](#)), or by using the tool bar button (see [toolbars](#)).

If a View has been changed, or a View is newly created, a prompt will appear asking if the view is to be saved before closing.

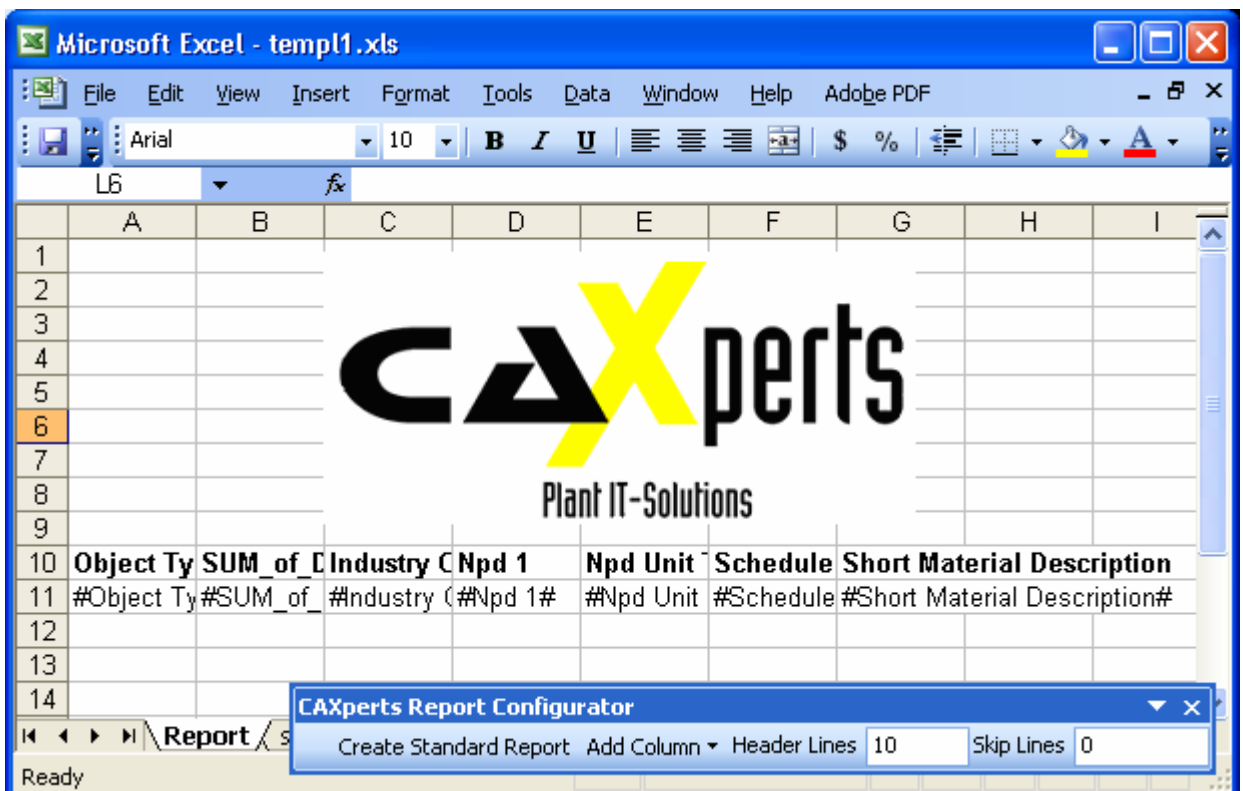
If a view is newly created, the Save As dialog will appear, if saved or closed. Also there is the possibility to save all views at once. This option can be found under the file menu.

5.3 Reporting

To export a report into an Excel spreadsheet use the Toolbar button **Export to Excel** (📄). The following dialog will appear.



If you intend to use a template file, first press the **File...** or the **new** button to select an existing or create a new template. In case **Use a template** option has been checked, the current item in the **Template File Path** combo box will be used to format the data while exporting. It is recommended to create or edit a template using the **New** or **Edit** button which will invoke a Toolbar inside the excel application to help create and customize the current template.



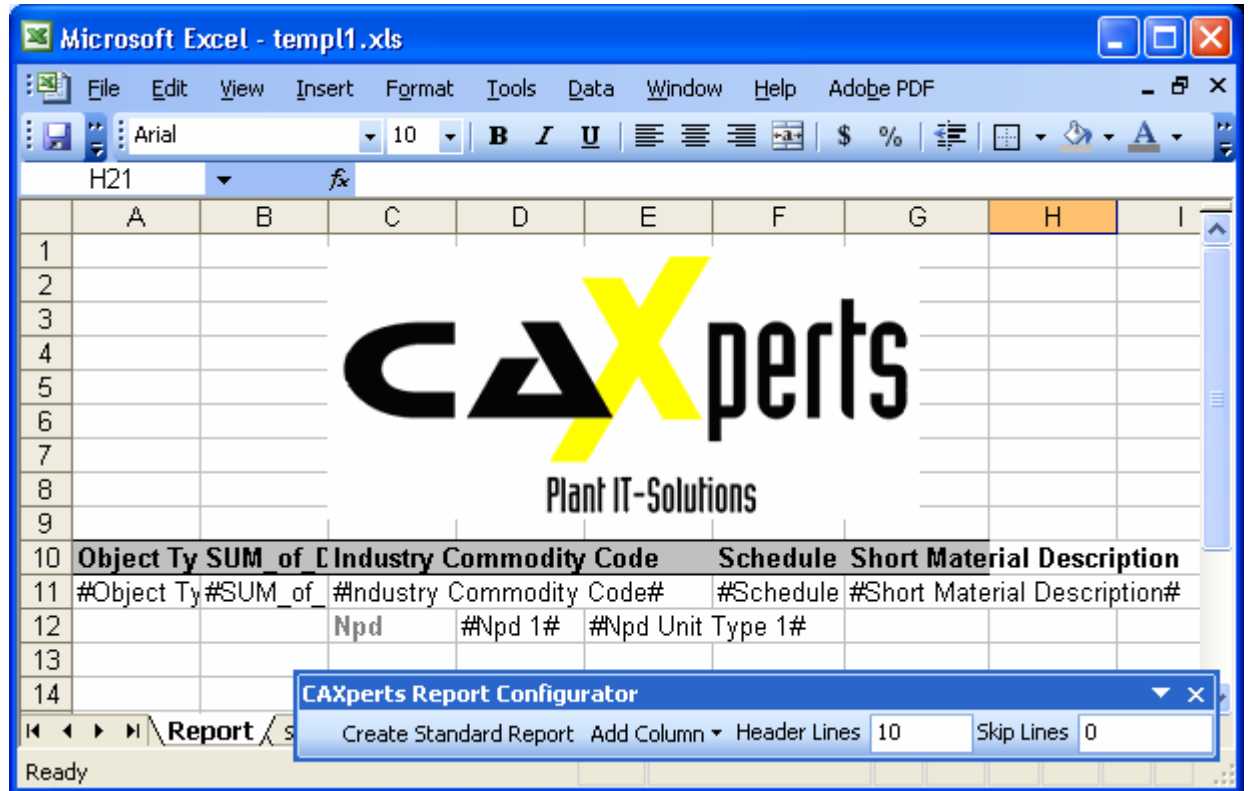
The macro offers the following options/settings:

- **Create Standard Report** – Apply the Header and Skip Lines setting and rebuild the sheet
- **Add Column** – Insert a column marker for the selected column in the cell currently selected
- **Header Lines** – Insert the number of rows that should be between the upper border and the column markers

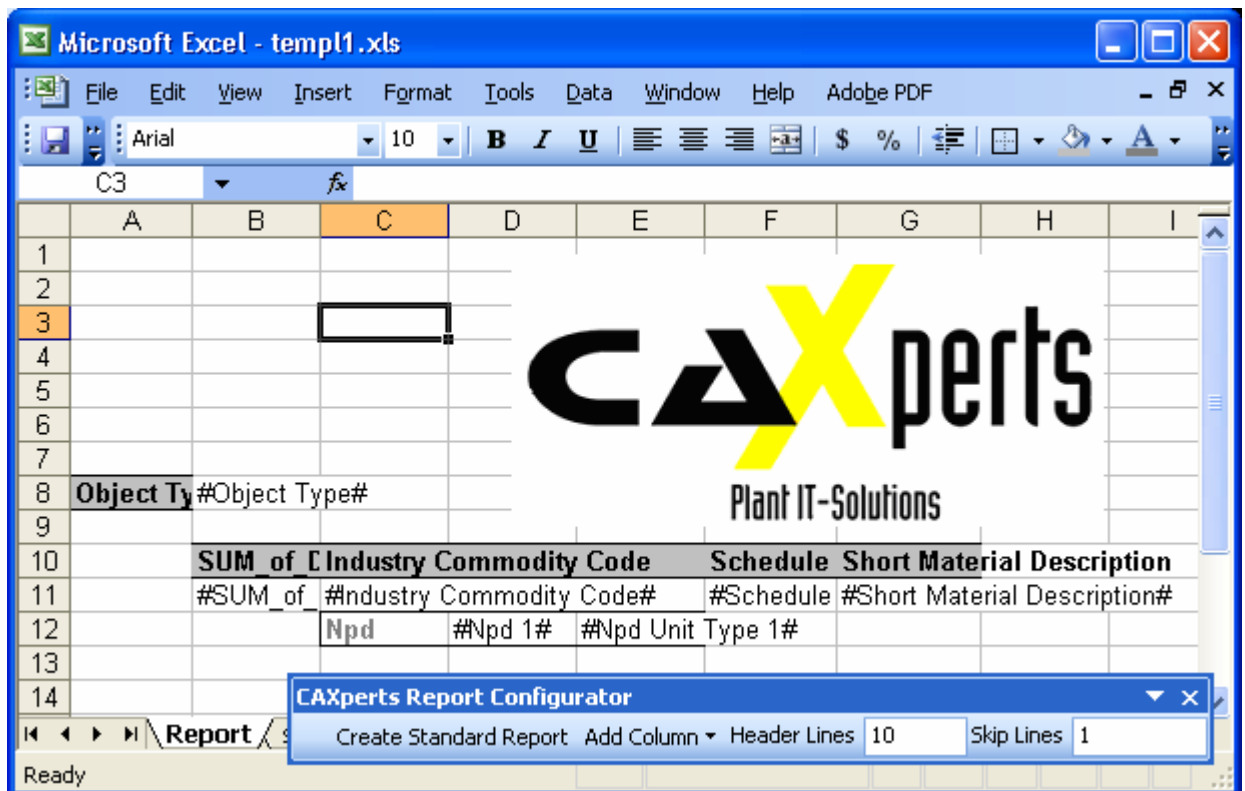
- **Skip Lines Between Rows** – Inserts the given number in empty rows between each line(s) with data

Additionally it is possible to insert pictures (i.e. your company logo), text and/or text formatting.

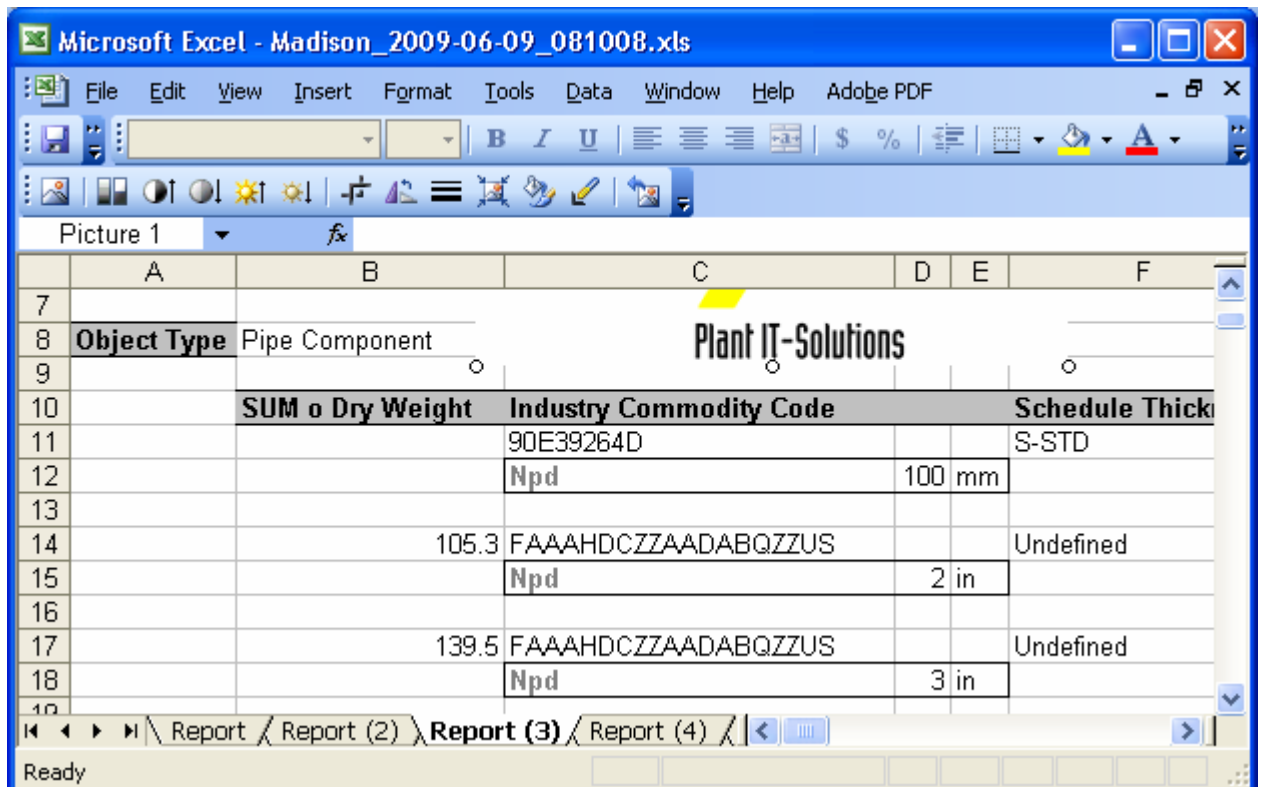
Other important functions include the Multiline reports. By simply spreading the column marker across more than one line a multi lined report is created.



It is also possible to create Multipage reports. This is achieved by placing one or more column marker with in the header area. Placing for example #Area System# from a piping report in to the header area, will create one sheet for each different type of Area System.



Close and save the template when you have finished. The Create Report dialog will be displayed again. Hit **Create Report** to generate the report.

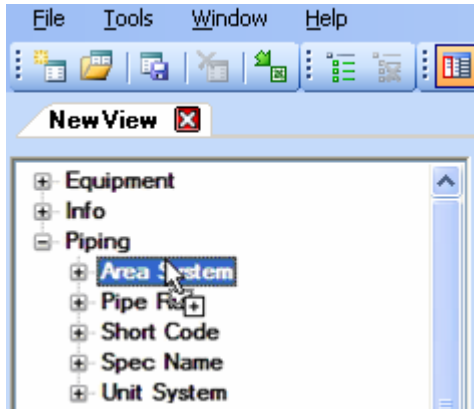


Above is the finished report with multiple Sheets. In this case each sheet represents a different object type.

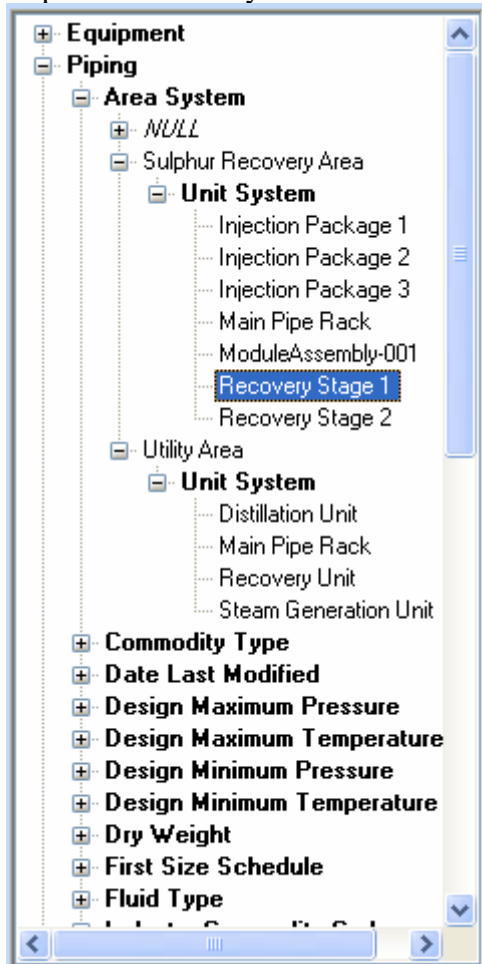
5.4 Example

Creating Report Pipe list per Unit System

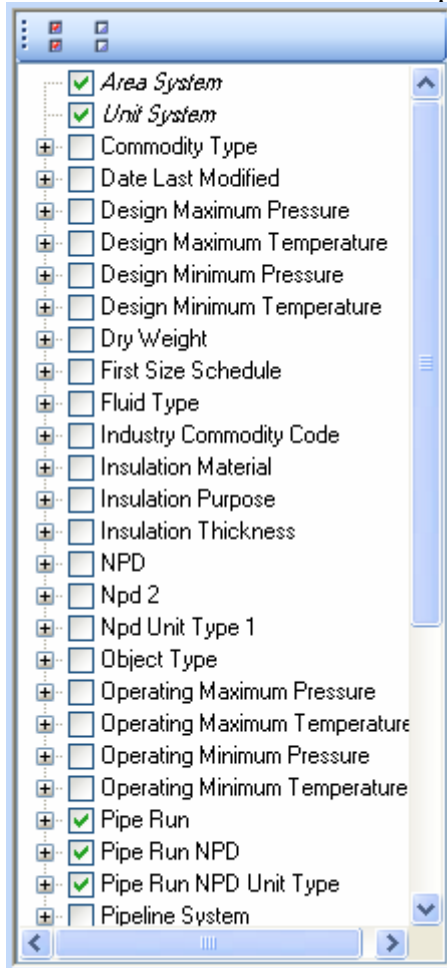
1. Grab and drag the Unit System node and drop it on the Area System node.



2. Expand the Area System nodes and select the desired Unit System.



3. Select the Attributes that should appear on the report (Pipe Run, Pipe Run NPD).

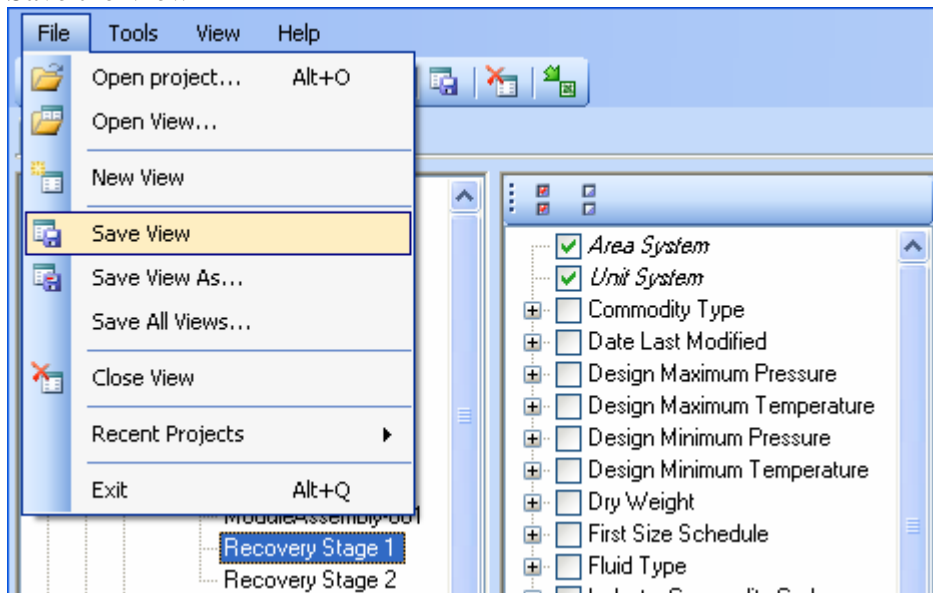


4. Report preview in the Grid

22 Filtered Records from a Total of 151

| Area System | Unit System | Pipe Run | Pipe Run NPD | Pipe Run NPD Unit |
|--------------------|------------------|------------------|--------------|-------------------|
| Sulphur Recovery | Recovery Stage 1 | | | |
| ▶ Sulphur Recovery | Recovery Stage 1 | P-176-10"-1C0031 | 10 in | |
| | | P-176-2"-1C0031- | 2 in | |
| | | P-176-8"-1C0031- | 8 in | |
| | | P-177-10"-1C0031 | 10 in | |
| | | P-177-2"-1C0031- | 2 in | |
| | | S-172-12"-1C0031 | 12 in | |
| | | S-172-2"-1C0031- | 2 in | |
| | | S-172-4"-1C0031- | 4 in | |
| | | S-172-6"-1C0031- | 6 in | |
| | | S-172-8"-1C0031- | 8 in | |
| | | S-174-2"-1C0031- | 2 in | |
| | | S-174-4"-1C0031- | 4 in | |
| | | S-174-6"-1C0031- | 6 in | |
| | | S-174-8"-1C0031- | 8 in | |
| | | S-175-8"-1C0031- | 8 in | |
| | | S-187-2"-1C0031- | 2 in | |
| | | SC-156-1-1/2"-1C | 1.5 in | |
| | | SC-156-3"-1C0031 | 3 in | |
| | | SC-156-6"-1C0031 | 6 in | |
| | | SC-168-1"-1C0031 | 1 in | |
| | | SC-168-2"-1C0031 | 2 in | |
| | | SC-168-3"-1C0031 | 3 in | |

5. Save the View



6. Export the report to Excel using a custom template or the default template

| | A | B | C | D | E |
|----|-----------------------|------------------|-------------------|--------------|------------------------|
| 5 | Area System | Unit System | Pipe Run | Pipe Run NPD | Pipe Run NPD Unit Type |
| 6 | Sulphur Recovery Area | Recovery Stage 1 | P-176-10"-1C0031- | 10 in | |
| 7 | Sulphur Recovery Area | Recovery Stage 1 | P-176-2"-1C0031- | 2 in | |
| 8 | Sulphur Recovery Area | Recovery Stage 1 | P-176-8"-1C0031- | 8 in | |
| 9 | Sulphur Recovery Area | Recovery Stage 1 | P-177-10"-1C0031- | 10 in | |
| 10 | Sulphur Recovery Area | Recovery Stage 1 | P-177-2"-1C0031- | 2 in | |
| 11 | Sulphur Recovery Area | Recovery Stage 1 | S-172-12"-1C0031- | 12 in | |
| 12 | Sulphur Recovery Area | Recovery Stage 1 | S-172-2"-1C0031- | 2 in | |
| 13 | Sulphur Recovery Area | Recovery Stage 1 | S-172-4"-1C0031- | 4 in | |
| 14 | Sulphur Recovery Area | Recovery Stage 1 | S-172-6"-1C0031- | 6 in | |
| 15 | Sulphur Recovery Area | Recovery Stage 1 | S-172-8"-1C0031- | 8 in | |
| 16 | Sulphur Recovery Area | Recovery Stage 1 | S-174-2"-1C0031- | 2 in | |
| 17 | Sulphur Recovery Area | Recovery Stage 1 | S-174-4"-1C0031- | 4 in | |

This Report is created using the default template.

6 3D DataManager Pro

6.1 Grid Color Coding

In order to show the different states of each value in the Report Grid, The cells of the grid are now color coded there are three colors as seen below:

| 319 Records | | | | |
|-------------|--------------|----------------|--------------------|--------------|
| Position | End Standard | Equipment Name | Nozzle Name | Npd Npd Unit |
| | | AC-100 | | |
| | | AC-200 | | |
| | | G-2 | | |
| flange | Default | B-0049 | Copy of Piping Str | 4.0 in |
| flange | Default | B-0049 | Copy of Piping Str | 4.0 in |
| flange | Default | B-0049 | Copy of Piping Str | 2.0 in |
| flange | Default | B-0049 | Copy of Piping Str | 2.0 in |
| flange | Default | B-0049 | N1 | 4.0 in |
| flange | Default | B-0049 | N2 | 4.0 in |
| flange | Default | B-0049 | N3 | 4.0 in |
| flange | Default | B-0049 | N4 | 4.0 in |
| flange | Default | D-100 | N1 | 8.0 in |
| flange | Default | D-100 | N10 | 2.0 in |
| flange | Default | D-100 | N2 | 10.0 in |
| flange | Default | D-100 | N3 | 8.0 in |
| flange | Default | D-100 | N4 | 6.0 in |
| flange | Default | D-100 | N5 | 10.0 in |
| flange | Default | D-100 | N6 | 4.0 in |
| flange | Default | D-100 | N7 | 6.0 in |
| flange | Default | D-100 | N8 | 8.0 in |
| flange | Default | D-100 | N9 | 2.0 in |
| flange | Default | D-100 | Copy of Piping Str | 2.0 in |

Blue represents a cell that has had its value changed. Grey cells are cells that cannot be edited, due to user rights, or belonging to read only values in SmartPlant 3D. White colored cells represent unmodified changeable values.

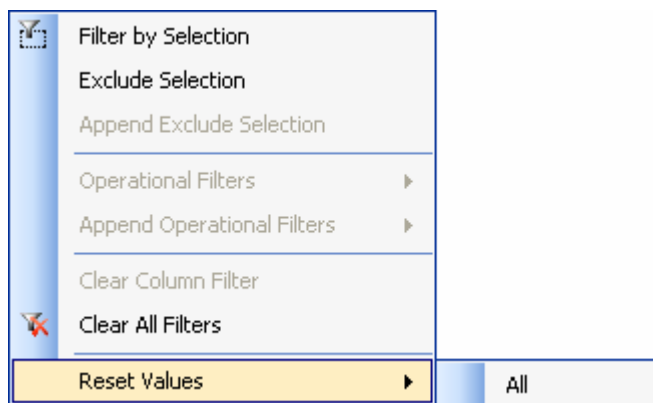
6.2 Changing a Value

Editing a Value in the Grid is done very quickly with either the dropdown box (as seen below) or via direct input. A dropdown box will only appear if the cell is code listed. Columns that are code listed can only be changed using the dropdown.

| 319 Records | | | | | | |
|-------------|--------------|----------------|--------------------|--|------|----------|
| ation | End Standard | Equipment Name | Nozzle Name | | Npd | Npd Unit |
| | | AC-100 | | | | |
| | | AC-200 | | | | |
| | | G-2 | | | | |
| flange | Default | B-0049 | Copy of Piping Str | | 4.0 | in |
| flange | Default | B-0049 | Copy of Piping Str | | 4.0 | in |
| flange | Default | B-0049 | Copy of Piping Str | | 2.0 | in |
| flange | Default | B-0049 | Copy of Piping Str | | 2.0 | in |
| flange | Default | B-0049 | N1 | | 4.0 | in |
| flange | Default | B-0049 | N2 | | 4.0 | in |
| flange | Default | B-0049 | N3 | | 4.0 | in |
| flange | Default | B-0049 | N4 | | 4.0 | in |
| flange | Default | D-100 | N1 | | 8.0 | in |
| flange | Default | D-100 | N10 | | 2.0 | in |
| flange | Default | Injection Tank | N2 | | 10.0 | in |
| flange | Default | K-001 | N3 | | 8.0 | in |
| flange | Default | K-002 | N4 | | 6.0 | in |
| flange | Default | L1 | N5 | | 10.0 | in |
| flange | Default | L10 | N6 | | 4.0 | in |
| flange | Default | L2 | N7 | | 6.0 | in |
| flange | Default | L3 | N8 | | 8.0 | in |
| flange | Default | L4 | N9 | | 2.0 | in |
| flange | Default | | Copy of Piping Str | | 2.0 | in |

6.3 Reset Changes

In order to undo all changes from the Access Database all at once, the Reset Changes function is available. This option can be found in the context menu of the grid.



By selecting this option, all changes made to the current task will be undone.

6.4 Previewing Changes

Additional features that **3D DataManager Pro** offers are its preview columns. After changing a value, the **Old Value** Column will appear in front of the changed column. After writing changes to SmartPlant, the **Update Status** Column is added behind every

column that has been updated. As seen below, two different operators are visible, the **Old Value** and the **Update Status** Operators.

The **Old Value** operator shows the original value of a changed Attribute next to the new attribute value. This is to ensure that prior to writing changes to **SmartPlant 3D**, it is known which changes have been made.

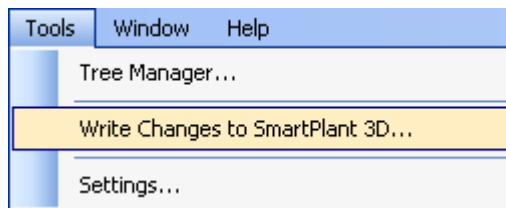
| 319 Records | | | | | |
|-------------------|----------------|-------------------|-------------------|-------------------|---------------|
| Old Value_of_Equi | Equipment Name | Update Status_of_ | Old Value_of_No | Nozzle Name | Update Status |
| W-301 | W-301 | | Copy of Copy of C | Copy of Copy of C | |
| W-301 | W-301 | | Copy of Copy of C | Copy of Copy of C | |
| W-301 | W-301 | | Copy of Copy of C | Copy of Copy of C | |
| W-301 | W-301 | | Copy of Copy of C | Copy of Copy of C | |
| W-302 | W-302a | OK | Copy of A | Copy of A | |
| W-302 | W-302a | OK | Copy of B1 | Copy of C2 | Up to date |
| W-302 | W-302a | OK | Copy of B2 | Copy of B2 | |
| W-302 | W-302a | OK | Copy of C | Copy of C | |
| W-302 | W-302a | OK | Copy of D | Copy of D | |
| W-302 | W-302a | OK | Copy of E1 | Copy of E1 | |
| W-302 | W-302a | OK | Copy of E2 | Copy of E2 | |
| W-303 | W-305 | Up to date | Copy of Copy of C | Copy of Copy of C | |
| W-303 | W-305 | Up to date | Copy of Copy of C | Copy of Copy of C | |
| W-303 | W-305 | Up to date | Copy of Copy of C | Copy of Copy of C | |
| W-303 | W-305 | Up to date | Copy of Copy of C | Copy of Copy of C | |
| W-303 | W-305 | Up to date | Copy of Copy of C | Copy of Copy of C | |
| W-303 | W-305 | Up to date | Copy of Copy of C | Copy of Copy of C | |
| W-303 | W-305 | Up to date | Copy of Copy of C | Copy of Copy of C | |
| W-303 | W-305 | Up to date | Copy of Copy of C | Copy of Copy of C | |
| W-311 | W-311 | | Copy of Copy of A | Copy of Copy of A | |
| W-311 | W-311 | | Copy of Copy of B | Copy of Copy of B | |
| W-311 | W-311 | | Copy of Copy of B | Copy of Copy of B | |
| W-311 | W-311 | | Copy of Copy of C | Copy of Copy of C | |

The other additional operator that is introduced in **3D DataManager Pro** is the **Update Status**. The **Update Status** displays one of four Values after the changes have been written. The first of the possible shown values for this column is OK. This simply means that all changes have been recorded with out a problem. The second possibility is “Up to Date”. This states that the value that has been changed in the Report Grid has the same value as the **SmartPlant 3D** object. The third possibility is an error message. This means that the value cannot be written to the **SmartPlant 3D** databank. Amongst other things, this can be due to user rights or database problems. The last of possible values is blank. This means no action has been taken.

These columns can be added and removed where applicable, by checking the reflective operator in the [Report Attributes](#) Tree.



An additional filtering method is also available in **3D DataManager Pro**. The Changed Values filter. When used, the filter shows only values that have been changed, making previewing prior to writing to **SmartPlant** easier and more comfortable. This filter is only available on two conditions. First, the column has to have had changes done to it, and secondly, The Old Values Column has to be visible. If either of these conditions is not met, the Changed Values filter will have no effect.

6.5 Writing Changes



Upon the selection of this option, the progress bar at the bottom right of the window will show the status of this process. Once this process is complete a message box will appear, stating the required time needed, and asking if the created database should be opened.

All changes made in **3D DataManager Pro** will also be changed in SmartPlant 3D. On top of that, the **Update Status** Operation will be available and checked for each column which had changes. This column shows the status of the update (see [Previewing Changes](#)). After updating and depending on necessity, it may be necessary to export a new access databank from **SmartPlant 3D** with **3D DataManager Extractor**.

-  Note: The Write Changes Command processes each task separately. E.g. if the current selected task is piping, only the changes made in piping will be applied,
-  Note: In order to write changes, 3D DataManager needs to be executed on a computer with SmartPlant 3D installed.