

# CAXperts

## *3D DataManager*

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*Quick Reference Guide*



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# 1 Introduction

**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

### 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.

## 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 SP5 or later

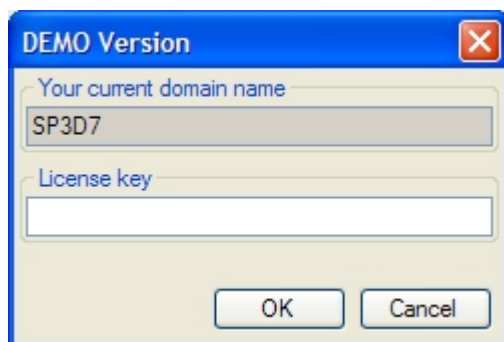
Administrator rights are required on each computer to install CAXperts **3D DataManager**. “Run as” is not supported.



### 2.1 License

There are three different licenses which enables the following features:

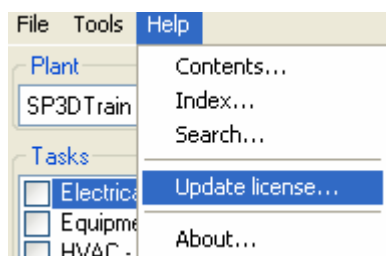
Feature	ReviewManager Extractor	3D DataManager Extractor	3D DataManager Pro Extractor
Extract Piping	+	+	+
Extract Equipment	+	+	+
Extract Structural	+	+	+
Extract Electrical	+	+	+
Extract HVAC	+	+	+
Extract Piping Catalog	-	+	+
Extract labels	-	-	+
Create SmartPlant Review Session	+	-	+
Calculate esti- mated length, vol- ume, surface	-	-	+
Report Connected objects	-	-	+
Merge databases	-	-	+
Execution of SQL statements	-	-	+

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.



## 3 3D DataManager Extractor

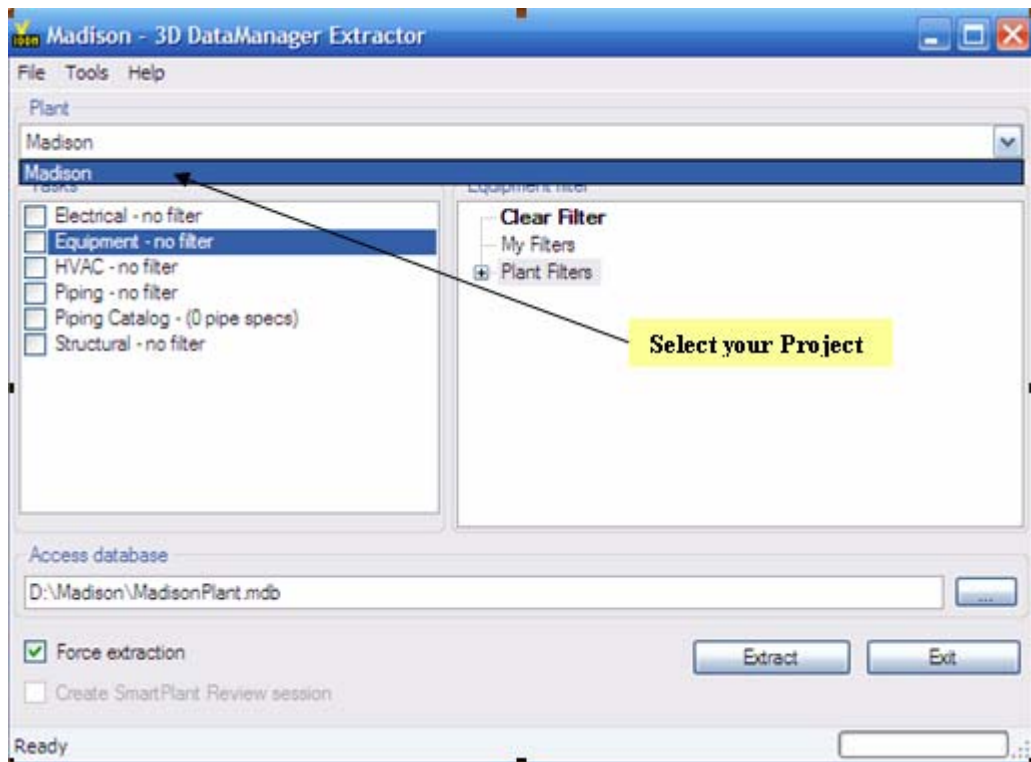
The **3D DataManager Extractor** is used to extract **SmartPlant 3D** data out of an existing project. This can either data be the Material-Take-Off (MTO) of all SmartPlant 3D disciplines or Piping Catalog Data. The extraction of all data can be done without any knowledge of SP3D specific Report Creation. The philosophy is to use the **SmartPlant 3D** Workspace Filters for creation of discipline specific reports.


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

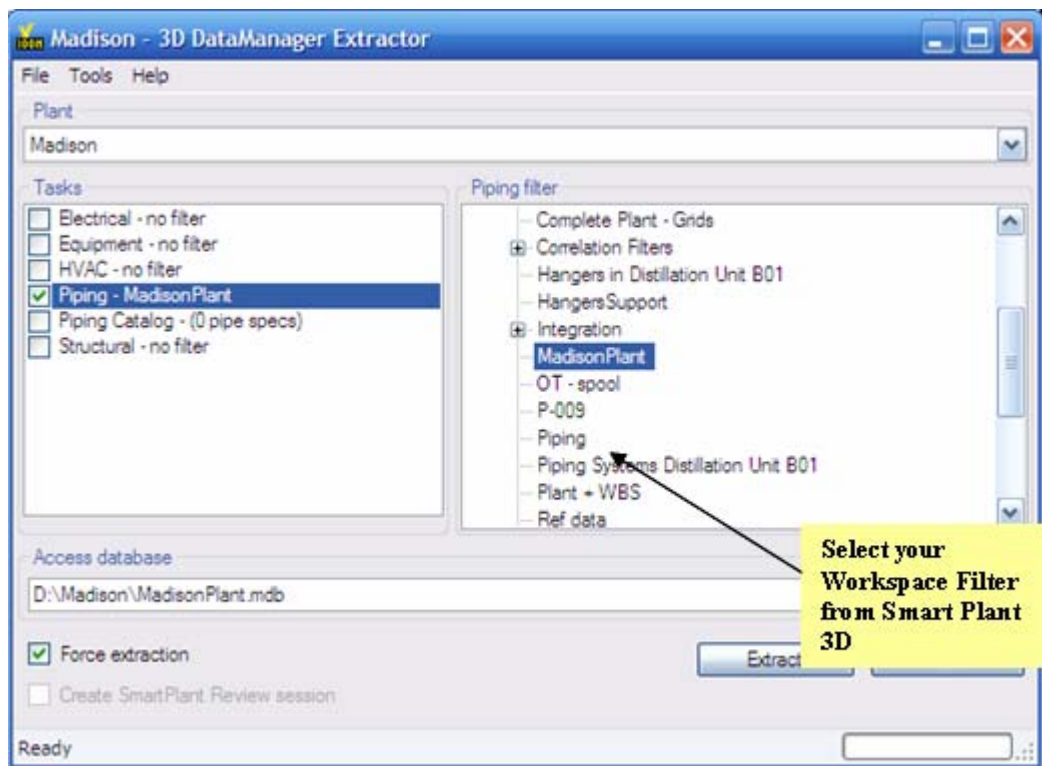
### 3.1 Setting up 3D DataManager Extractor

#### Extracting MTO-Data

Start **3D DataManager Extractor** and select your Model Plant from the Combo Box:




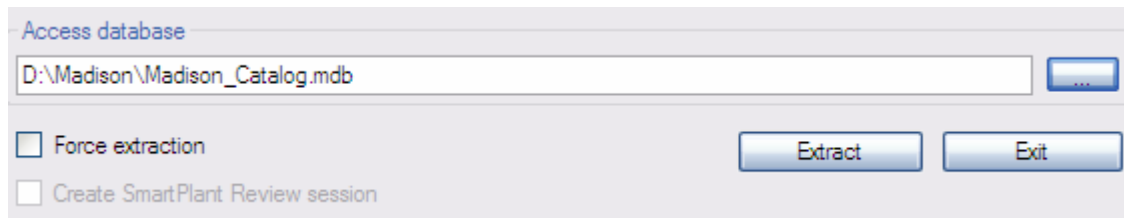
 Note: Only plants of the current site are displayed.



From your Smart Plant 3D Project all personal and Plant Filters are shown and each can be used for Extraction.

 Note: For each task individual filters can be applied.

Browse with the () button to select a location to create a Microsoft Access Database file in which the results will be shown.




**Force extraction** – By default this option is disabled (recommended). When disabled, the software only processes changed objects since the last. 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 fully extracted from **SmartPlant 3D**.

 Note: Force extraction switch has no effect on the Piping Catalog task.

**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**.

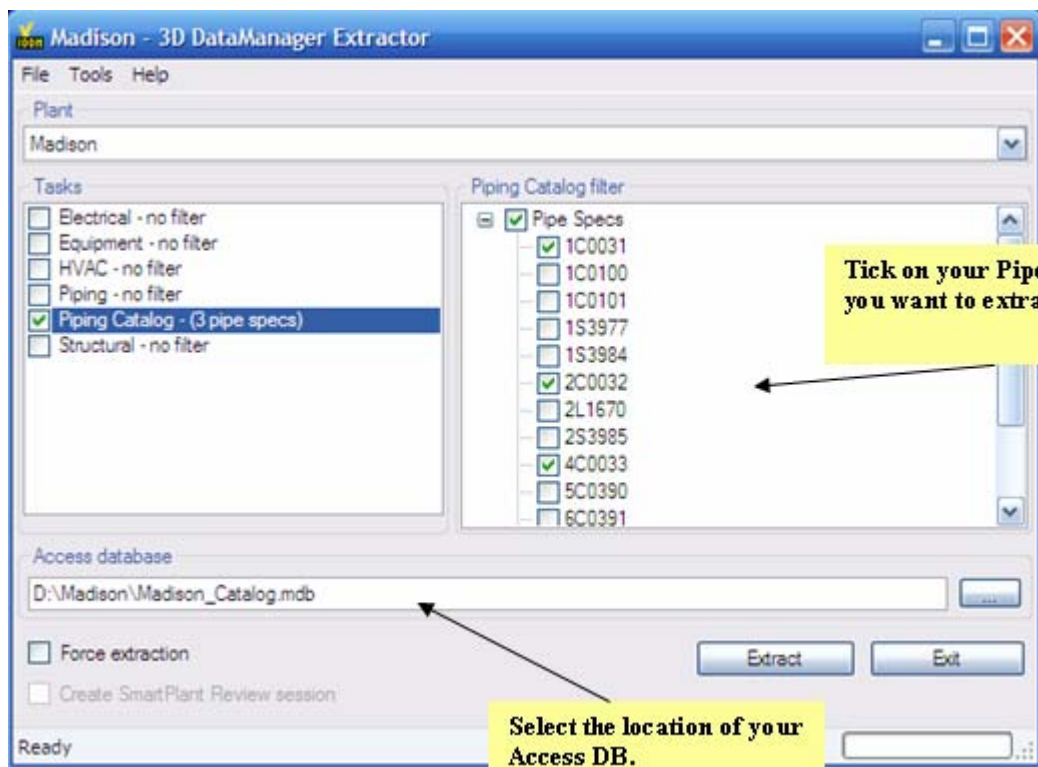
Start the process by clicking the **Extract** button.

 Note: To modify or add new attributes to the resulting access database see “[Configure Attributes](#)”


## Extracting Piping Catalog Data

**3D DataManager Extractor** also allows extraction of Piping Catalog Data.

This enables customers to check the content of Piping Specs in a very efficient way. It’s an important benefit to have all Attributes of each PipeSpec part in one table of your DB instead of having all the information in different Excel-sheets and -workbooks. Additionally all code list-values appear with their description, not only with their numbers.



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

 Note: To modify or add new attributes to result Access database see “[Configure Attributes](#)”

## 3.2 Create SmartPlant Review session

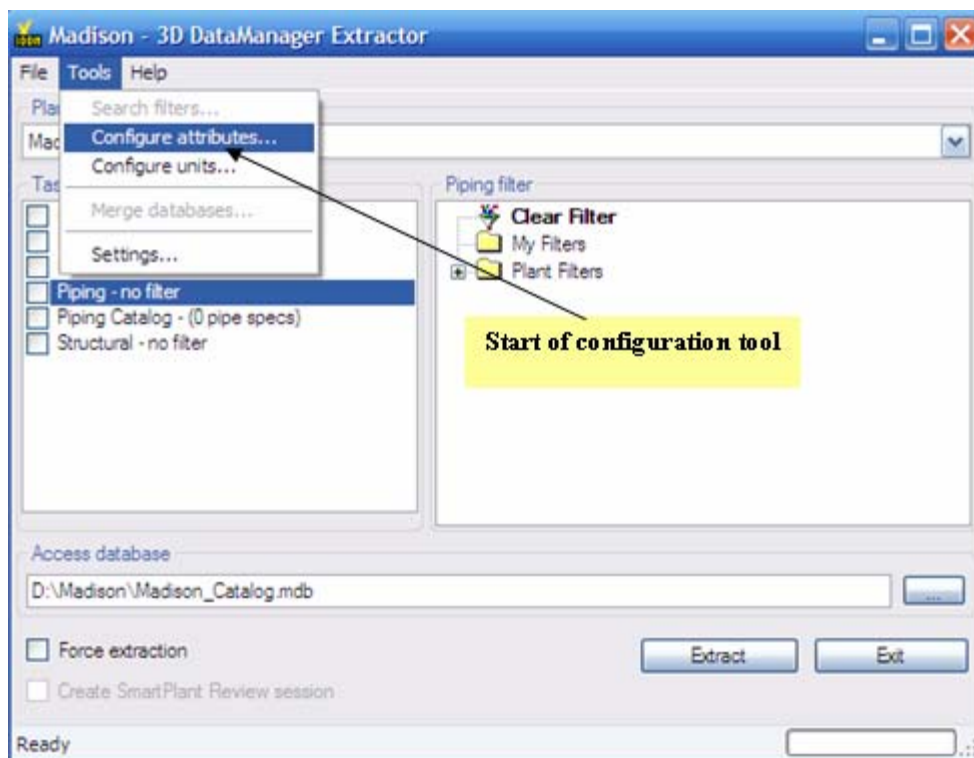
**3D DataManager Extractor** allows creation of a Smart Plant Review session which can be viewed in the **CAXperts ReviewManager** or in **SmartPlant Review**.

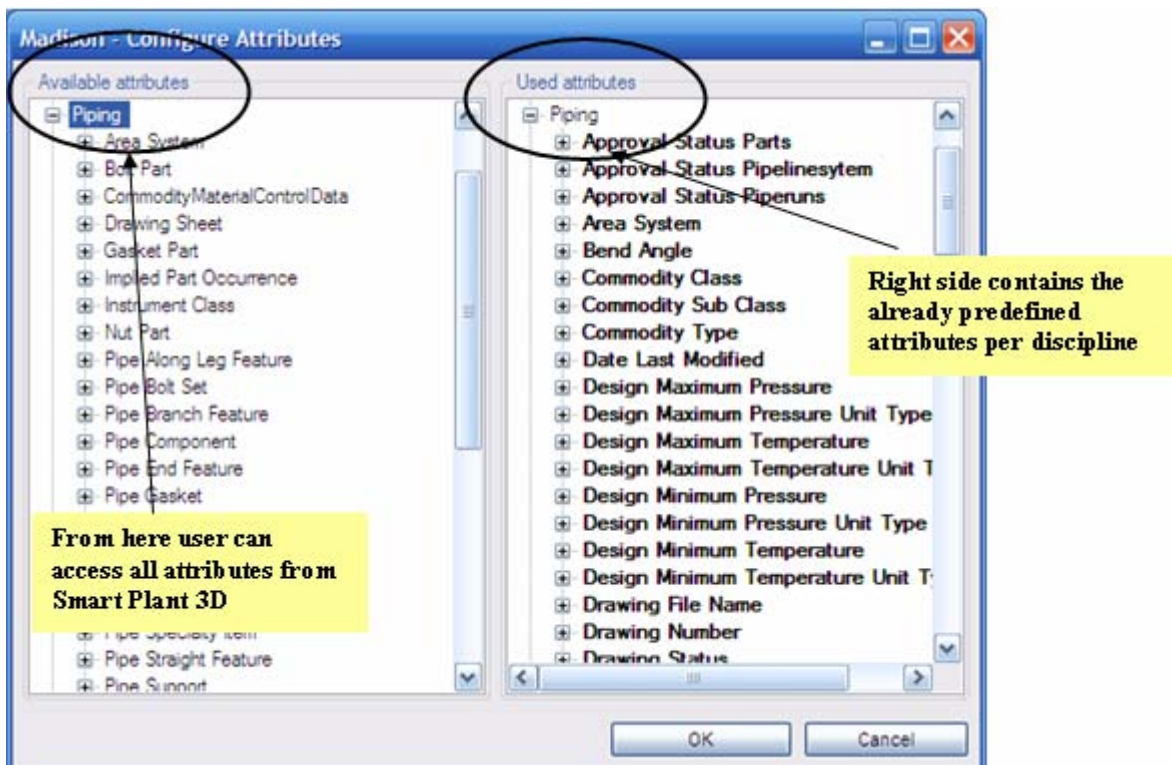
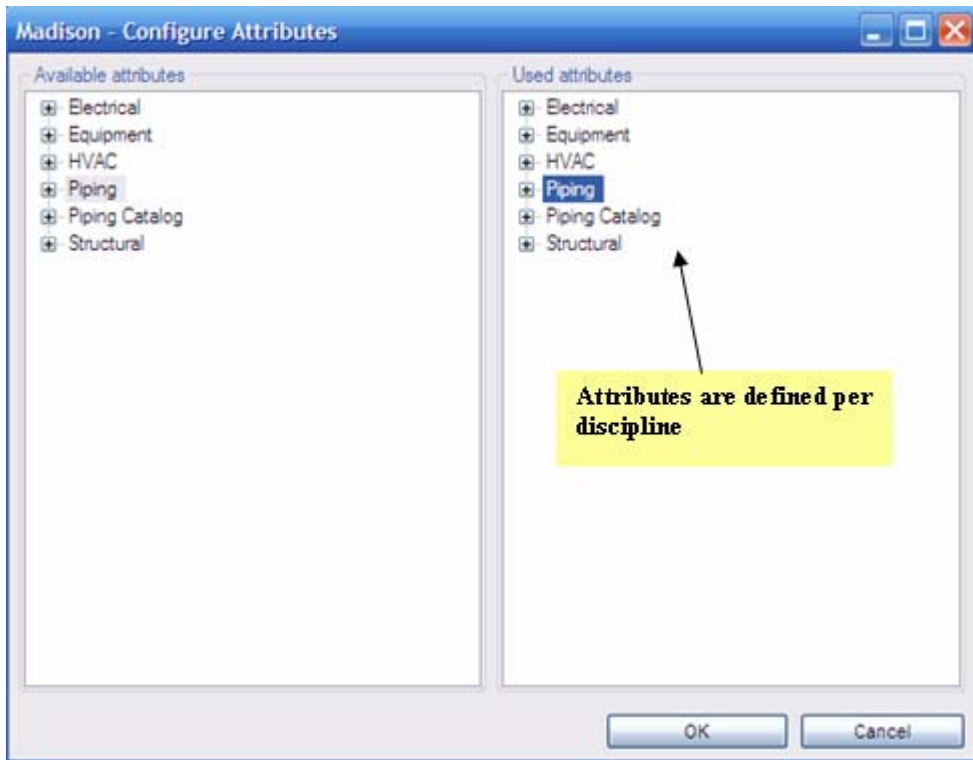
If the checkbox **Create SmartPlant Review session** is enabled the software creates **SmartPlant Review** \*.vue file containing the graphical objects from selected tasks (according to the applied filter) and the **SmartPlant Review** database (\*.mdb2) with attributes as configured in the “[Configure 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 are typically created upon creation of a **SmartPlant Review** in **SmartPlant 3D**, is not required and not generated, because all the attributes for the objects contained inside of the \*.vue file are stored directly in the **SmartPlant Review** database (\*.mdb2).

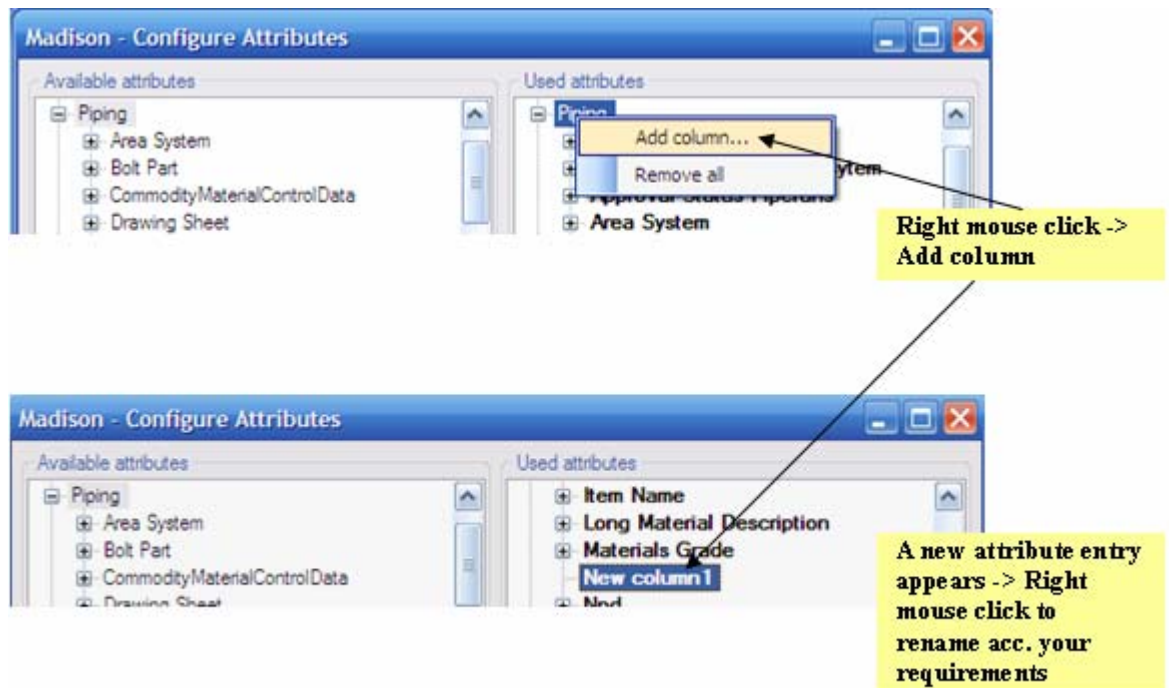
## 3.3 Configure Attributes

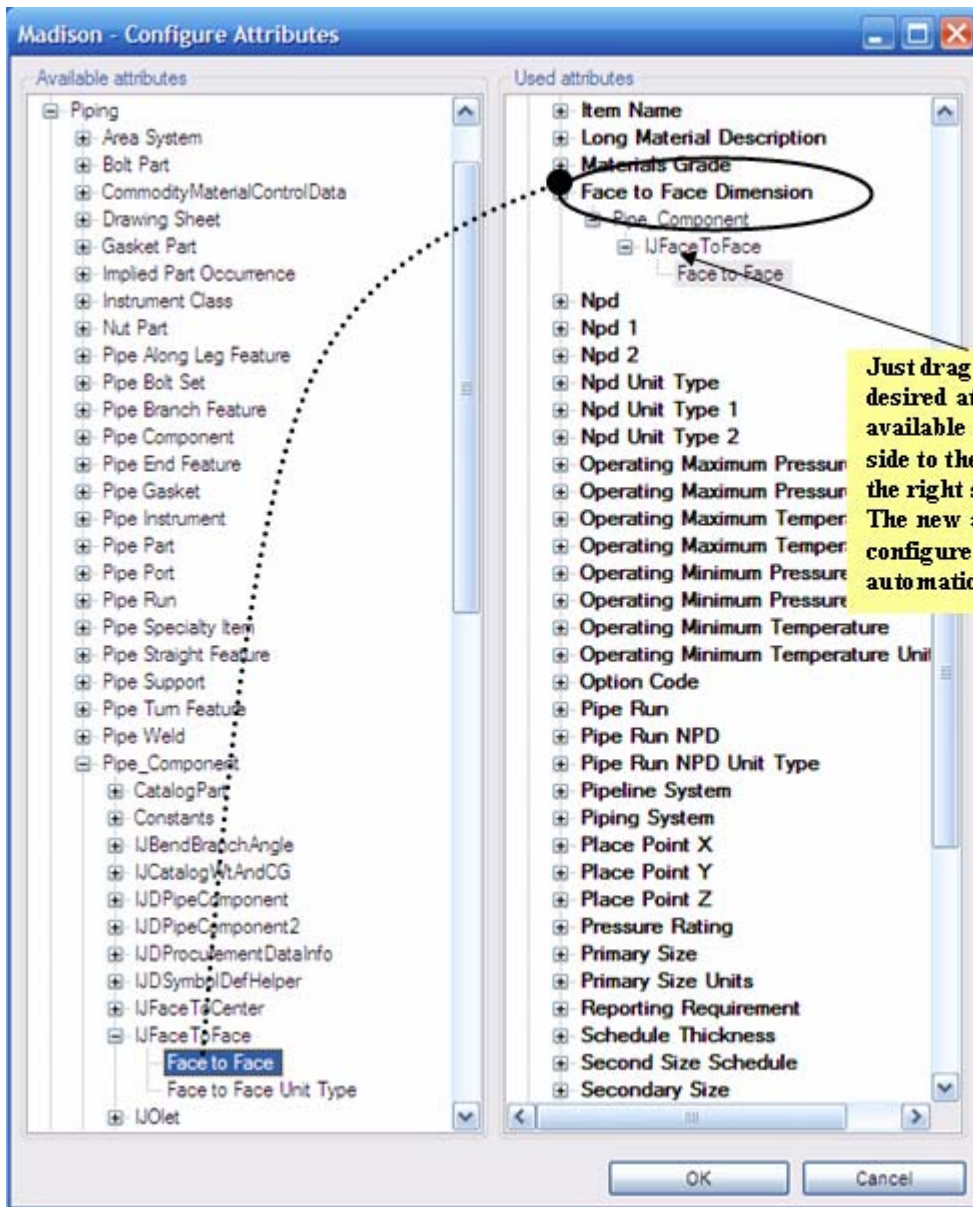
**3D DataManager Extractor** contains a predefined set of attributes which are reported by default. Additionally customer can define and configure own attributes. No database specific or programming knowledge is required for customization of reportable **Smart Plant 3D** attributes.







## Add new attribute





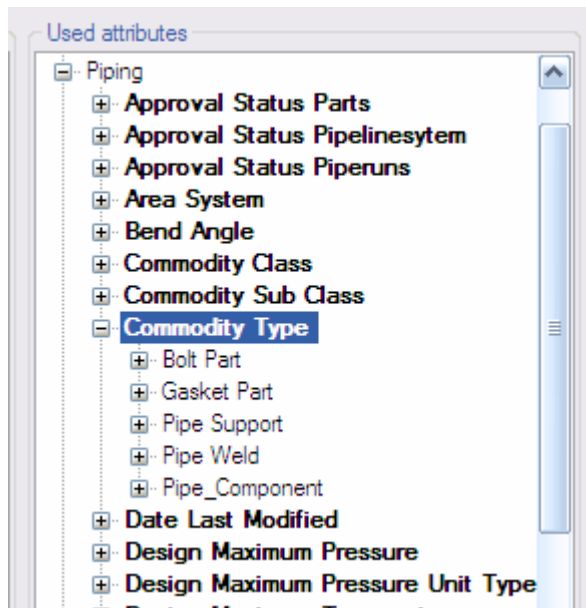
Press **OK** to finish the configuration.

-  Note: The changes will be applied on the next extraction
-  Note: **SmartPlant 3D** labels can be used similar to the direct object attributes.

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 expanding 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.

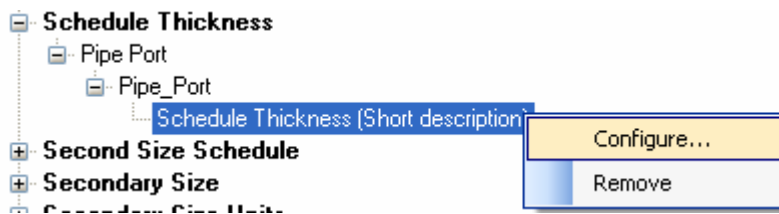
Mapping one or more objects to columns can be done by dragging and dropping a selected object in to the target column.

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



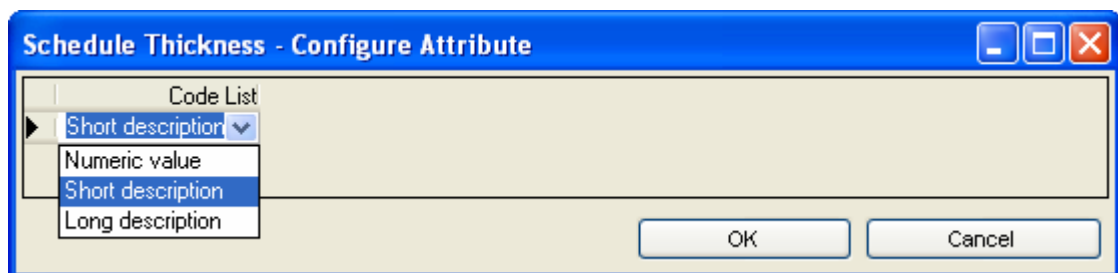
## Extended attribute settings


Click with the right mouse button on a code listed attribute to open extended attribute configuration form:



Code listed attributes can be extracted as:

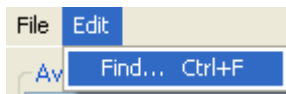
- Numeric values
- Values decoded by short description
- Values decoded by long description (default)



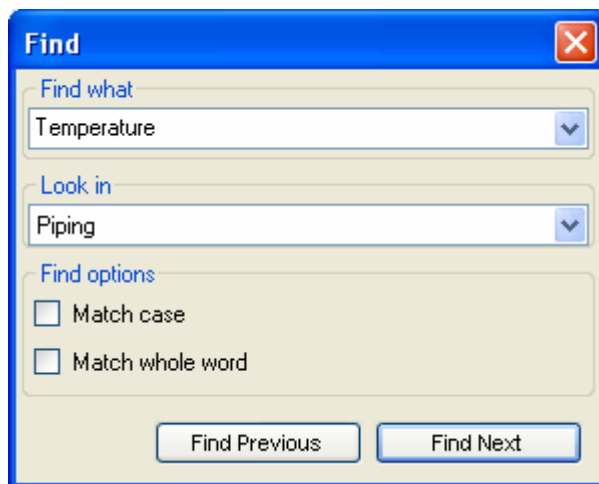
 Note: The changes will be applied on the next extraction.

## Find

Select “**Find...**” from the **Edit** menu to search for the available attributes:

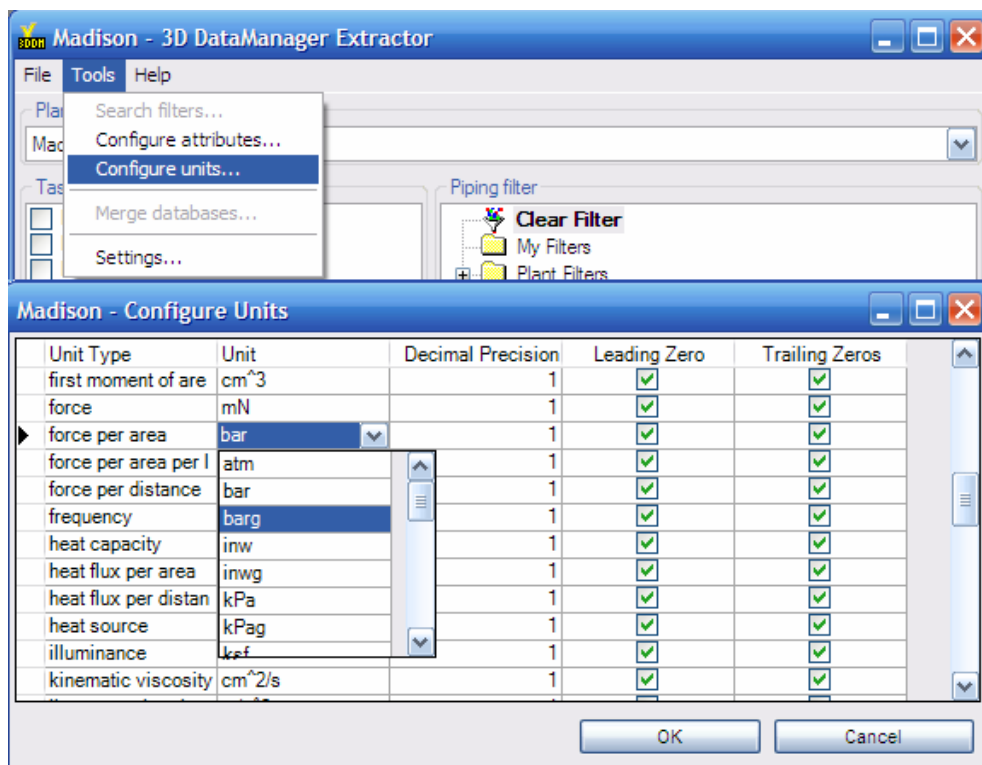


Enter the search text in “**Find what**” and define the task name in “**Look in**” to search for the attribute in the given task:




## 3.4 Configure Units

**3D DataManager Extractor** allows to configure the units and their decimal precision independently of actual **Smart Plant 3D** settings.



- **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

## 3.5 Settings

All program settings (selected tasks and filters, attributes, units of measure ...) are stored automatically for each plant in the configuration file located by default in the user profile folder. The location of the configuration file can be changed by using menu Tools->Settings.


### Load settings from file

To import the settings into the plant configuration file use menu “File->Load settings from file”.

 Note: The location of the plant configuration file is not affected, only the content of the file will be overwritten

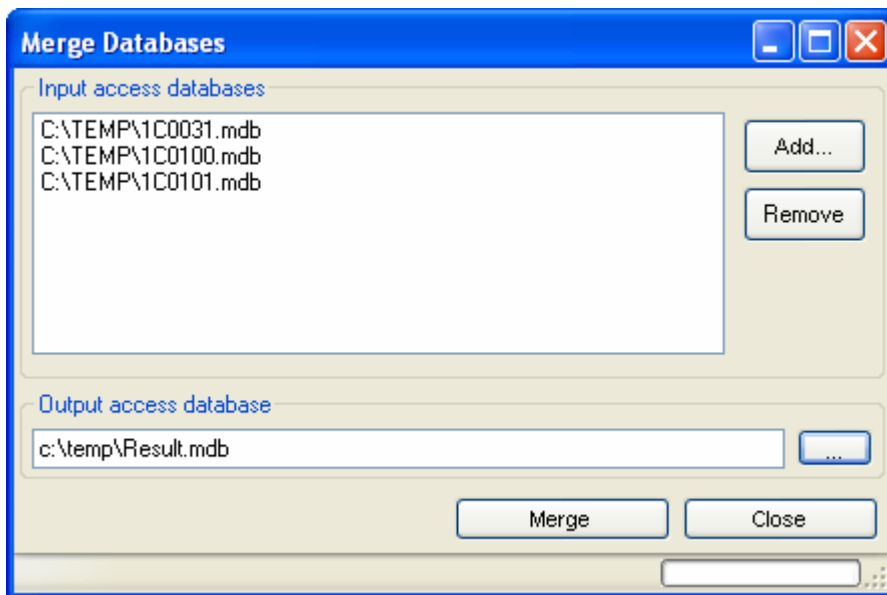
### Save settings to file

To export the settings from the plant configuration file use menu “File->Save settings to file”.

 Note: The location of the plant configuration file is not affected

## 3.6 Merge databases

Select “**Merge databases...**” from the **Tools** menu to merge multiple **3D DataManager Extractor** Access Databases with Piping Catalog data into single database.



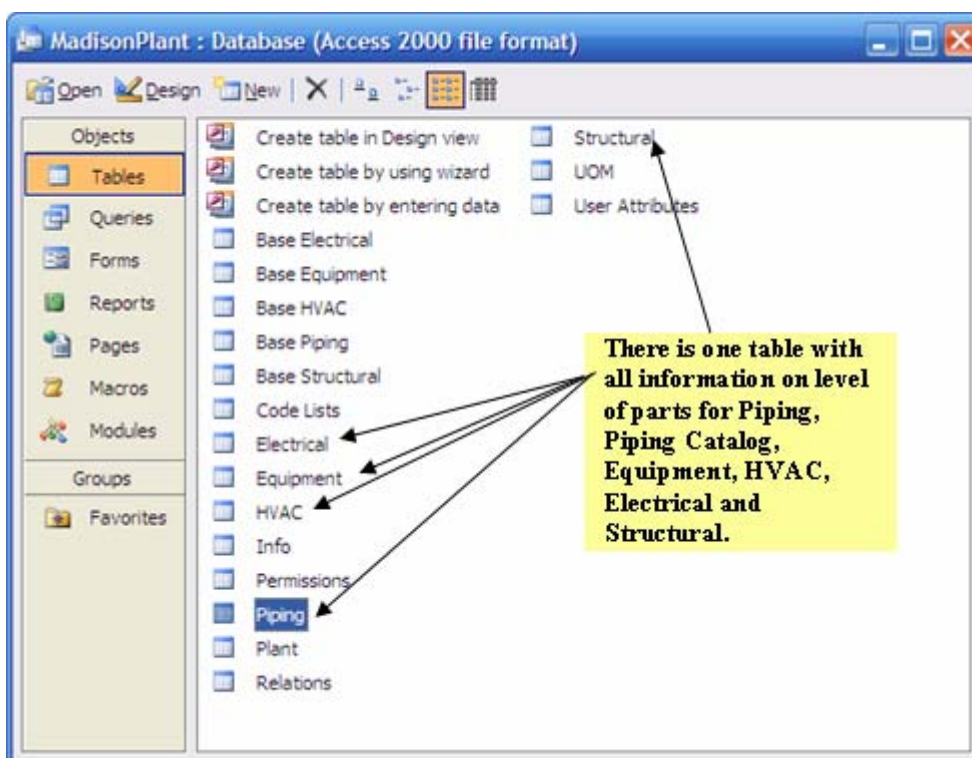
Note: the merge function supports only the Piping Catalog task.

### 3.7 Content of result database

When extraction process has finished, **3D DataManager Extractor** prompts for opening the resulting database in Microsoft Access.

There are some sample reports for Piping and Equipment with typical task-specific attributes predefined. These reports can also be used as templates to create other reports.

The philosophy of **3D DataManager Extractor** is to have one table with all attributes per Task on the hierarchy-level of parts.



## Piping Catalog


The table contains the following objects:

- Pipes
- Pipe Components
- Pipe Bolt Set
- Pipe Gaskets
- Pipe Nuts
- Pipe Washers

## 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
- Support Components

 Note: The length, surface area and volume attribute 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:

The table contains the following objects:

- Equipment
- Equipment Component
- All Type of Nozzles

## 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.

## 3.8 Command Line Mode

The **3D DataManager Extractor** can be used from the command line to automate the exportation of a **SmartPlant 3D** data.

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] [/output output_file.mdb]
[/task Piping [/filter area1]] [/task Piping Catalog
[/filter spec1] [/filter spec2]] [/force] [/createSPR]
```

/plant plant_name	SmartPlant 3D plant to process
/config config_file.ini	Config file which contains the settings for the extraction. If a configuration file is not defined, the last configuration will be used
/output output_file.mdb	Output database. If Output database is not defined, the last configuration will be used
/task task_name	Task name to extract, followed by the filter. If no tasks are defined, the last configuration will be used
/filter filter_name	Filter name, applied to the previously defined task. Multiple filters can be defined for Piping Catalog task
/force	Force extraction, see “ <a href="#">Extracting MTO-Data</a> ” for details”
/createSPR	Create SmartPlant Review session, see “ <a href="#">Create SmartPlant Review session</a> ” for details