

PROPERTIES INTRODUCTION AND OVERVIEW

Concepts and common administrative tasks are described in this paper. This paper is not a comprehensive description - complete details are available through Vault 2011 Help. Most of the features described are in all Vault 2011 products. However, some features are only available in the higher levels of the Vault product line.

Introduction

The property system for Vault 2011 is a single set of properties that are shared across files, items, change orders and reference designators. There are two types of properties: System and User Defined Properties (UDP.) System properties cannot be deleted but do support some configuration options like renaming and a few support mapping. Duplicate property names are not permitted for either type.

UDP's are custom created properties that support assignment to object groups, policy constraints and mapping of values with file and BOM properties. With each new vault there are numerous UDP's supplied as part of the default configuration.

Some of the highlights of the new property system:

- o Consistent user interface for all property management
- o Property constraint overrides by category
- o Streamlined Edit Properties wizard
- o New vertical properties grid supports multiple files as well as Items & Change Orders
- o 'Lists' support text and number data types as well as addition and removal of values
- o Standardized mapping for all property sources
- o Bi-directional mapping

Property Definition

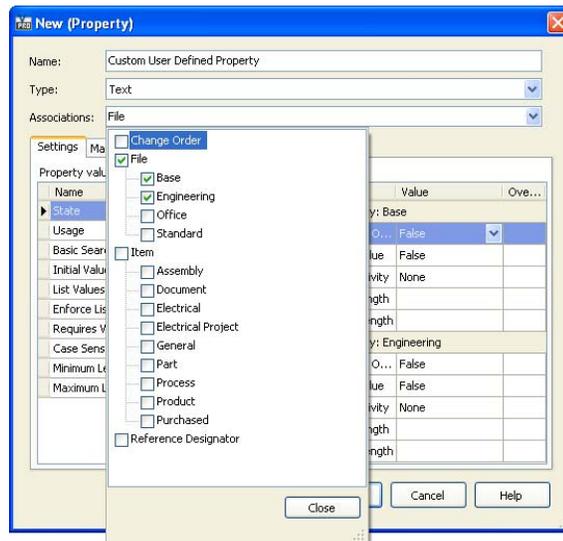
A property definition contains a name, data type, policy settings and mappings. The definition also specifies which object groups are associated with and may utilize the property. As an example, we will use the property definition *Author*. If *Author* is associated with the *File* and *Item* groups it may appear on any file or item but cannot appear with change orders and reference designators. (Reference Designators are a feature of AutoCAD Electrical). Every object (file and item) that is associated with the property definition *Author* will have a unique value. This may seem obvious when comparing two files as they each may have a unique value. This principle may not be as obvious when comparing objects across groups. If a file is promoted to an item, the file and item are allowed to have unique values for *Author*.

**Change Order Link Properties remain a separate property system.*

Administration

Creation and Association

To create a property the name and data type must be specified. The new property is not available for use until it has been associated to an object group. The groups are: Change Order, File, Item and Reference Designator. In the sample image below, the *File* object group is selected. This new property cannot be attached to an Item, Change Order or Reference Designator unless those object groups are also selected.



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All files in the categories *Base* or *Engineering* will have this property automatically attached. If this property needs to be attached to a specific file in another category it may be manually attached. Manual attachment can be done in two ways: using the *Edit Properties Wizard* or the *Add or Remove Property* located on the Actions menu.

The object groups *Change Order* and *Reference Designator* do not support categories. Therefore, any property associated with one of these groups will be automatically attached to all objects in that group.

Settings

The policy values under the *Property Values* column (left side of the dialog) are applied to all instances of this property except where the category override applies. The *Category Values* allow overrides by category. Consult the *Help* for further details about overrides and policies. In this paper, we will outline *Initial Value*, *List Values* and *Enforce List Values*.

Initial Value

The *Initial Value* is applied once when the property is initially associated with an object. The initial value is only applied in the absence of a user supplied or a mapped value.

The initial association occurs in three circumstances: 1) object is created (ex: adding a file or creating an item) 2) assignment to a category that automatically attaches the property 3) manual property attachment.

There are two types of *Initial Value*: static and mapped. The static value is a fixed value and may be any value that is valid for the selected data type. An initial mapped value copies the value from a file or BOM property.

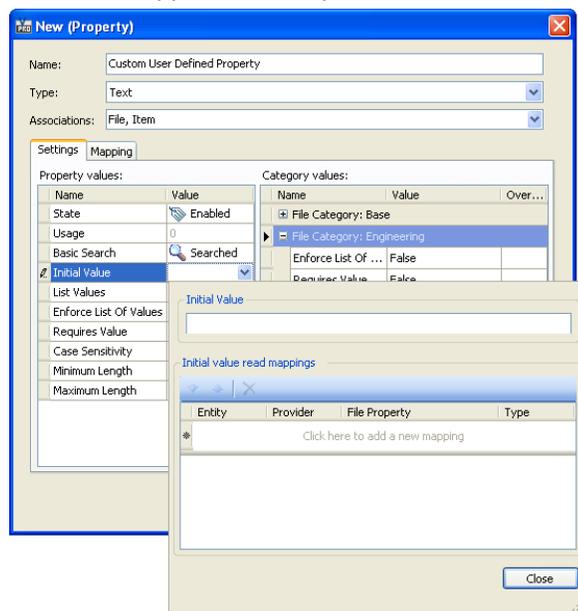
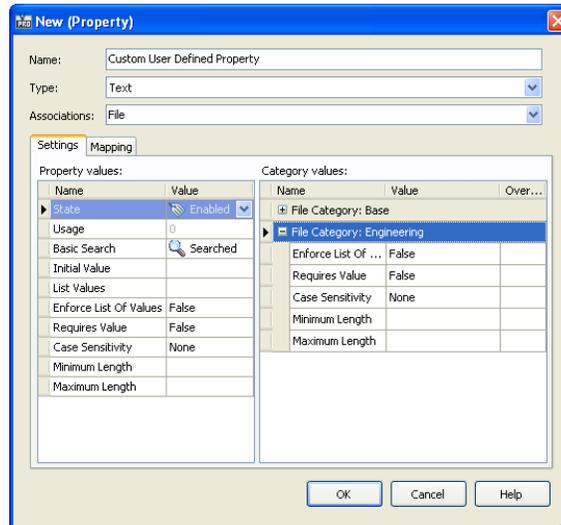
Initial Values should NOT be used on properties where all regular mappings read the value from a file or BOM. A blank value in the mapped file or BOM field takes precedence over the initial value. This may appear as if the initial value is not applied when in fact the mapped value of 'blank' takes precedence.

List Values

Properties of type Text and Number may provide a list of values for user selection and searching. The administrator may add or remove values from the list at any time. Removal of a value from the list does not remove the value from any property where that value has been applied. When specifying the value for this property, the user may choose from the list of values. Enter values that are not on the list is allowed. If this property is mapped to read a value from a file or BOM, the imported value is not required to be on the list.

Enforce List Values

When enabled, this option will provide a warning symbol adjacent to this property if the value is not on the list. When a value is in violation of this policy, the default configuration for lifecycle transitions will not allow a file or item to be released.

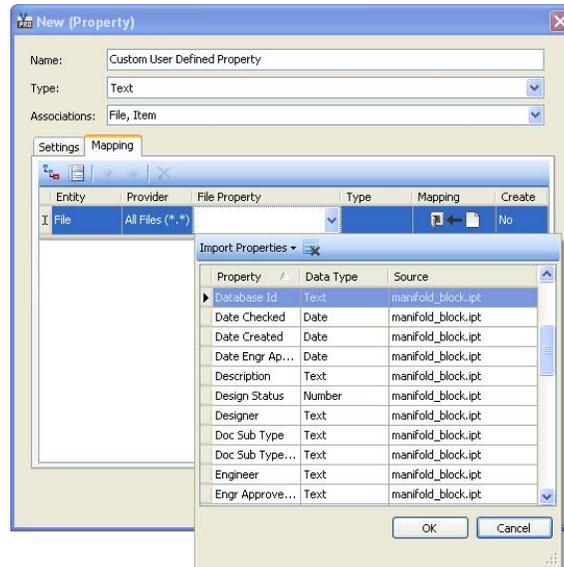


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Mapping

To create a property mapping, the administrator must first choose which object group is to be mapped. In the image below, this is specified under the first column titled *Entity*. The available choices are based on the value of the *Associations* field. Several Content Providers are included but in most cases it is best to leave the selection on *All Files (*.*)*. Vault will automatically select the most appropriate Content Provider based on the file type. Next, select a file that contains the property or BOM field to be mapped. The image on the left shows the file properties available for mapping in the file *manifold_block.ipt*.

The *Type* column shows the data type of the source property. Mapping may be done across data types. However, there are special considerations that are detailed in the next section. The mapping direction by default will chose bi-directional unless the file or BOM property does not support the input of values. When this occurs the mapping option will be limited to Read only. Read only mappings should be used sparingly because any UDP that contains only 'Read only' mappings may not be modified in Vault.



Mapping Across Data Types

There are four property types: *Text*, *Number*, *Boolean* & *Date*. The following matrix defines valid property mappings. Whenever a mapping is created between two different property types there is the possibility of incompatibility. The onus is on the user to input valid values. If an invalid value is entered in most cases, the equivalence will flag the property as non-equivalent. The exceptions are listed below.

		Source Property (File or BOM)			
		Text	Number	Boolean	Date
UDP	Text	Yes	Yes(2)	Yes(1)	Yes(2)
	Number	Yes(2)	Yes	Yes	No
	Boolean	Yes(1)	Yes	Yes	No
	Date	Yes(2)	No	No	Yes

Supported mapping across data types

1. **Mapping Boolean with Text:** The supported valid text values are: *Yes/No*, *True/False* and *1/0*. These values are localized. A string like 'Autodesk' entered in a *Text* property cannot be transferred to a *Boolean* property. This property mapping would be flagged as not equivalent.
2. **Mapping Text with Number or Text with Date:** Works well when all clients and the server are in the same language-locale. With mixed locales values may convert in a manner that is not intuitive and may produce an undesirable result. Therefore, mapping *Text* with *Number* or *Text* with *Date* is only recommended when the server and all clients are working in the same locale.

Create Option

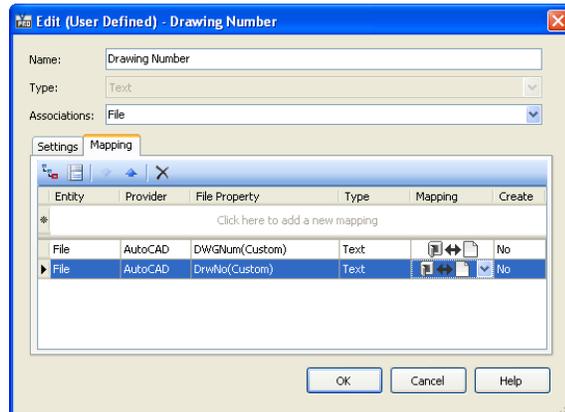
The *Create* option applies to write mappings; if the file property does not exist when a value is pushed to the file, the administrator may choose whether the file property is created or not.

The *Create* option has another function that is not obvious: when enabled the equivalence calculation will consider the absence of the property definition in the file as a blank value and

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compare it against the value of the UDP in Vault. When the *Create* option is disabled, equivalence will be set to 'Good' when the mapped property definition does not exist in the file.

Example: I have two departments in my organization that both create .dwg files but they use different file properties to represent the same information. The R&D department uses the file property DwgNum. The Tooling department uses the file property DrwNo. I want to manage all drawings from both groups in a single Vault and with one UDP 'Drawing Number'. The correct configuration is to create bidirectional mappings and set the Create option to Off for both mappings. The result is that a modification of the UDP Drawing Number will write its value back to whichever property exists and it will not create an extra property.



Mapping AutoCAD Block Attributes

Autodesk® AutoCAD® block attribute mapping requires configuration on the ADMS. Select *Index Block Attributes...* from the Tools menu in Autodesk Data Management Server Console 2011. Enter the AutoCAD block names from which to extract attributes. After this is done, it is possible to map a UDP to an attribute using the mapping process described above. Configured mappings allow the system to read and/or write values between the UDP and the attribute.

Usage of attribute mapping is intended for single instances of a block or when all block instances have the same attribute values. It is not possible for multiple block instances to be mapped to separate UDP's. Many companies have one instance of a title block in a given .dwg files. Occasionally, there are companies that use multiple instances of a title block in a single file. In these cases, the attributes often share the same values. An example is a drawing file that contains three borders of different size. Each border uses the same title block with attributes. The attributes for Customer Name, Engineer, Project Number, etc. will share the same value for all instances. Such attributes that share the same value may be mapped to a UDP. Attributes like Border Size will have a unique value for each block instance. Therefore, Border Size should not be mapped to a UDP in Vault.



AutoCAD Mechanical

Autodesk® AutoCAD® Mechanical software (ACM) supports three distinct sets of properties, all of which may be mapped to Vault UDPs. The three ACM property sets are: file, assembly and component. See the ACM documentation for details about the intended use and differences between these properties.

Vault file properties may map to ACM file properties and Vault item properties may map to ACM assembly and component properties.

It should also be noted that ACM assembly and file properties having the same name, should not be mapped to the same Vault UDP.

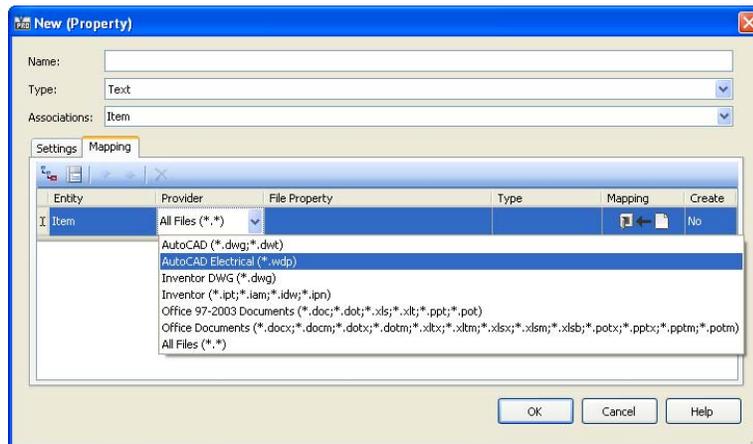
AutoCAD Electrical

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Autodesk® AutoCAD® Electrical software (ACE) supports both file and BOM properties. ACE BOM properties may be mapped to Item properties. ACE utilizes properties located in .dwg's, .wdp's and associated databases. ACE properties are exposed to Vault in four ways:

First: Ordinary DWG™ file properties and block attributes may be mapped to Vault File objects. The majority of these mappings support bi-directional mapping. Creation of these mappings is described in the Mapping section of this document.

Second: WDP properties support mapping to Item properties. They also support bi-directional mapping. Creating a mapping with WDP properties requires the AutoCAD Electrical Content Source Provider. The provider is specified in the second column of the image at the right. This provider is automatically set when a file of type .wdp is selected under the File Property column. If an associated .wdl file has been created both the line number and the alternate property name will automatically appear in the list for selection. You may select the line number or the alternate display name to create the mapping. All wdl properties will appear in the list of selectable properties; it does not matter if a value is present.



Third: Component BOM properties may be mapped to Item properties. This includes properties like:

Catalog Number, Component Name, Component Type, Electrical Type, Equivalence Value & Manufacturer and more...

To create a mapping to a component BOM property, create a new UDP and associate it to Items. Then on the Mapping tab create a new mapping, making sure the first column Entity is set to Item. Under the File Property column, browse and select any file that contains the property to which you will create the mapping. Some properties require that a value exist or the property is not available for selection in the list.

Reminder: When creating new properties it is best to associate them to a category which will automatically associate them to the files and/or items where the property should appear. If this is not done, the property will have to be manually associated to the file or item.

Fourth: Reference Designator properties, when mapped will appear in Vault as optional data on an Item BOM. There are eighteen Reference Designator properties available:

INST, LOC, TAG, DESC1...3, RATING1...12

These properties may be mapped to an Item BOM using the DWG content source provider.

To create a mapping to a Reference Designator, create a new UDP and associate it to Reference Designator. Then on the Mapping tab create a new mapping, ensure the first column Entity is set to Reference Designator. Under the File Property column select the dwg containing the Reference Designator to which the mapping needs to be created. All Reference Designators are available for selection in the list without requiring a value.

Properties(Historical)

A handful of properties have duplicates having the same display name with '(Historical)' appended to the end: State, Revision Scheme, Property Compliance, Lifecycle Definition, Category Name & Category Glyph. These 'historical' properties exist solely to retain a record of the values when a configuration change alters the value of the non-historical properties. In other words, the 'historical'

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property will always contain the value as it existed when that version was created. This situation arises because these properties may have a new value due to a configuration change, even though a new version is not created.

A policy change is a good example of why these historical' properties exist. An organization may have released documents that use the property *Vendor*. Currently the policy on the property *Vendor* does not require a value. The administrator modifies the policy 'Requires Value' to require a value. After the automatic compliance recalculation, any existing documents (including released documents) with the *Vendor* property and without a value will have a new *PropertyCompliance* value of non-compliant. *PropertyCompliance(Historical)* will retain the value of compliant.

Migration

The property features of Vault 2011 are a significant enhancement. A feature overhaul of this scale poses challenges for migration. Most prominent is the calculation of property compliance. In some migration cases, the compliance calculation will require additional information beyond that which was stored in Vault 2010 or earlier versions. Performing a *Re-Index* will resolve the majority of these cases. **It is highly recommended that a *Re-Index* is performed after migration.** A *Re-Index* using the option for *Latest and Released Versions Only* is sufficient. In rare cases, a re-index may not restore compliance values to pre-migration values. If this occurs, manual adjustment to the property configuration may be required.

File Index Properties

FIP's are no longer supported. The values contained by the FIP's will remain available in UDP's. There are multiple FIP configurations that require unique migration rules, listed here:

FIP with no mapping or grouping: this ordinary FIP exists in Vault 2010 or earlier, without any mapping to a UDP and is not a member in any group. Migration will create a UDP, which will be mapped to the file property from which the FIP was created.

FIP mapped to a UDP: upon migration, the UDP is carried forward and the FIP is removed from Vault. The value remains available in Vault through the UDP.

Grouped FIP's: property groups are migrated to a UDP having the same name and are mapped to the sources of all the grouped FIP's.

Bi-directional Mappings

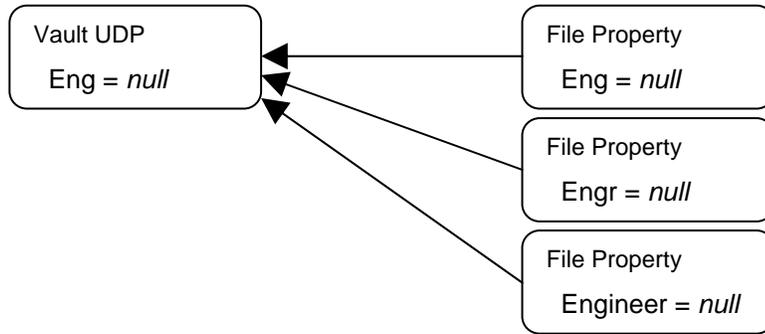
New to Vault 2011 is the ability to create *Bi-directional* property mapping. In previous releases, a mapping was either *Read* or *Write*. Because of this change, a UDP that has only *Read* mappings may not be modified. An example is a UDP that is mapped to *Read* its value from the file property *Creation Date*. It makes no sense to write a value back to *Creation Date*.

After migrating to Vault 2011, property mappings that were previously *Read* will be changed to *Bi-directional*. If the mapped source does not support input of a value, like the *Creation Date* example above, the mapping will not be changed and will remain *Read*. UDP's that have multiple mappings through the same Content Provider may, under specific circumstances, become non-compliant. If this occurs, it may be necessary to alter the configuration to restore compliance.

An example:

Vault 2010 or any previous version has a property configuration where two or more file properties are mapped as *Read* into the same UDP. This can occur when companies merge or when file property name standards change. For the *Read* mappings of the configuration below, equivalence is calculated on the highest priority mapping, which is *Eng*; the mappings to the other properties are ignored.

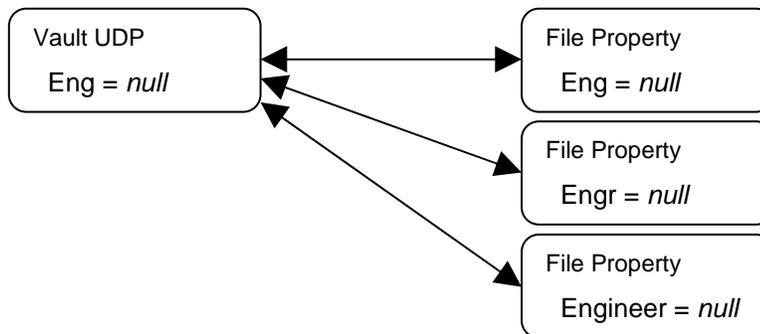
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Upon migration to Vault 2011, *Read* mappings are converted to *Bi-directional* (shown below.). For the *Bi-directional* mappings of the configuration below, equivalence is calculated between the UDP and each file property that exists in the file. In most cases, only one of the file properties exists in any given file, which will result in the UDP being flagged as compliant.

If two properties exist in a file both will be considered for equivalence. If either file property has a value that does not match the UDP it is flagged as non-compliant.

Enabling the *Create* option on a mapping will force equivalence calculation on that mapping even when the property definition does not exist in the file. When the property definition does not exist in the file, each mapping with the *Create* option set to Off is ignored for equivalence calculation.



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