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IRMM/Grontmij

Vault-Revit connection

Table of Contents

IRMM/Grontmij	1
Vault-Revit connection	1
1. Basic principles	2
1.1 General	2
1.2 Revit file filename:	2
1.3 Properties	2
1.4 Conduct	2
1.5 Relationship between document and Item	3
1.5.1 Relationship between Revit file and the associated items	3
1.5.2 Relationship between other documents with associated items	3
1.6 Vault-Revit operation	4
1.6.1 Checking and reporting without Vault from Revit	4
1.6.2 Checking and reporting with Vault from Revit	5
2. MOC	5
3. Workload	5

1. Basic principles

1.1 General

Routine is activated from the open file in Revit (checked out)

If items are not connected to Revit, the file may possibly not be found in the Vault

Project based on:

- Revit 2015
- Vault 2015

1.2 Revit file filename:

_Discipline_BuildingXYZ_.rvt,

Whereby:

Discipline: CIVIL, MEP, M, E, P

XYZ: the building number, always 3 figures

There is only 1 Revit file per building & discipline

1.3 Properties

Overview:

Revit parameters	Direction	Vault properties
RevitID	①	RevitID
Discipline *	①	Discipline
BuildingNo.	①	BuildingNo.
NLSFB code**	①	NLSFB code
CategoryName	①	Defines the Vault category
RoomNumber	①	Roomnumber
FunctionalLocation	←	Number (= unique ID of the item in Vault)

Other parameters/properties are not synchronised

*Only: CIVIL, MEP, M, E, P

**E.g. 23.12 or 55.10: 2 figures will appear after the full stop

List with NLSFB translation -> Vault category: Sam will deliver the latest version to (comparable with previous list)

1.4 Conduct

Vault setting: "Apply item security to related files" = OFF

This ensures that the revision behaviour of CAD files and items is independent from one another. In other words, documents linked to items will not be locked by 1 or more released items.

1.5 Relationship between document and item

In a user scenario, we distinguish 2 situations:

1.5.1 Relationship between Revit file and the associated items

No relationship is created between the items and the related Revit file from the Revit connection. A second routine can be created that connects both the Revit file and the Navisworks file to the items based on `_Discipline_BuildingXYZ` (filename) vis-à-vis the Vaultproperty RevitID

Alternative: manual copying and maintaining

Routine is currently not provided, we can look into this further after January

1.5.2 Relationship between other documents with associated items

From each item, a manual connection can be made to the associated file. Several items can refer to the same file.

Possible links that are taken into consideration in Vault:

Primary subcomponent: on each "Vault update" of the item, the latest version of the file is retained

Status change and prop change do not cause an update of the doc link; you must explicitly perform an update item to go to the latest version of the doc (version unfortunately cannot be chosen, always the latest)

Disadvantage: it is not possible manually to link 1 file to several items (this is possible via the measurement software, but the update has to be looked into afterwards)

How do you link the latest file version to the item? "Vault update" for EACH item

Attachment: choice between pinning or non-pinning (= latest)

Status change and prop change always cause an update of the doc link; you do not need explicitly to perform an update item to go to the latest version of the doc (hence not the latest released version) If you do not want this, you can make the version non-pinning (= version to be chosen freely)

Disadvantage:

- When an item is changed while the document is in WIP, the latest version (<> latest released version) is linked to the item.
- In the user interface, the link between file and item is not visible and cannot be consulted

Solution:

- Additional measurement software that gives a list of the connected items. ("Go to" or "open" is not possible, to do this the user has to search for the item in the item master.)

- Additional software may be needed to link several items to 1 file. Comparable to the routine under 1.5.1

(Currently the above-mentioned measurement software is not provided; this can possibly be looked into later) Proposal: use of **attachment** as a link type to connect files and items.

To be looked into: which setting needs to be changed to prevent the "description" from being created empty.

1.6 Vault-Revit operation

No distinction is made between the first upload and subsequent synchronisations. The routine will always first give an overview of the elements to be synchronised with their possible error or solution. Only Revit objects with CategoryName filled in are considered for the synchronisation (check = manual).

1.6.1 Checking and reporting without Vault from Revit

Model consistency check

1. Report number to be read, e.g.: 500 'candidate' export objects
2. Report: Mandatory parameters: [RevitId], Discipline, BuildingNo., NLFSBCode, CategoryName, RoomNumber (no zone, elevation) FunctionalLocation = empty (in 1st instance), result is XML Excel with these parameters Revit objects with empty or non-existent parameters are entered into the reporting. Only Fulo may be empty.
3. Report: relationship category name-NLFSBcode
Revit objects for which the combination category name-NLFSB code does not appear in the mapping table shall be reported. (mapping table must be present)
4. Report: relationship category name-Discipline
Revit objects for which the combination category name-Discipline does not appear in the mapping table shall be reported.
5. Report: test discipline compared to filename (*_DISCIPLINE_'Building'XYZ_*)?
Revit objects for which the discipline does not correspond to the discipline from the filename shall be reported
6. Report: test buildingNo. compared to filename (*_DISCIPLINE_'Building'XYZ_*)?
Revit objects for which the building no. does not correspond to the discipline from the filename shall be reported

The above reporting shall be visible on the screen for the user and can also be transferred to Excel.

1.6.2 Checking and reporting with Vault from Revit

Objects in Revit are compared with the items in Vault. The set objects in Revit are the objects with completed CategoryName, the set items in Vault are those with a corresponding building no. and discipline **with completed Revit ID**. These 2 sets are compared with each other and shall deliver the following reports:

1. For all Revit objects and Vault items with the same Fulo, all other fields (RevitID, Discipline, BuildingNo., NLSFB code, CategoryName, RoomNumber) shall be checked compared to one another. If a field does not correspond, this shall be reported.
2. For all Revit objects and Vault items with the same "BuildingNo.-RevitID-Discipline", all other fields (NLSFB code, CategoryName, RoomNumber, FunctionalLocation) shall be checked compared to one another. If a field does not correspond, this shall be reported.
3. All Vault items without corresponding Fulo shall be reported in Revit.
4. All Vault items without corresponding "BuildingNo.-RevitID-Discipline" shall be reported in Revit.
5. All Revit objects without corresponding Fulo in Vault shall be reported.
6. All Revit objects without corresponding "BuildingNo.-RevitID-Discipline" shall be reported in Vault.

In addition to the comparison of the 2 sets of objects, there is also a report to check whether or not in the Revit file Fulos that appear there are some that are in use in another building.

1. List with Vault Items of another building or discipline that have a Fulo and appear in the Revit objects.

If all previous reports are empty, the latest report can be created, the import report: All Revit objects with empty Fulo shall be reported

2. MOC

- Revision management – Items
- Revision management

Files To be elaborated further

3. Workload

For programming of the synchronisation routine, we estimate 10 days' work. Andries has already started on the programming so that it can be delivered in January.