

VAREvitLink 23.0

User's Guide



Updated: 10/25/24

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1 Help Topics

1.1 Welcome to VAREvitLink 23.0 User's Guide

The VAREvitLink can be used to transfer model data between VisualAnalysis and Autodesk's Revit. Once the link has been installed, both Export and Import will show up on the "Add-Ins Tab" in Revit, as shown in Figure 1.

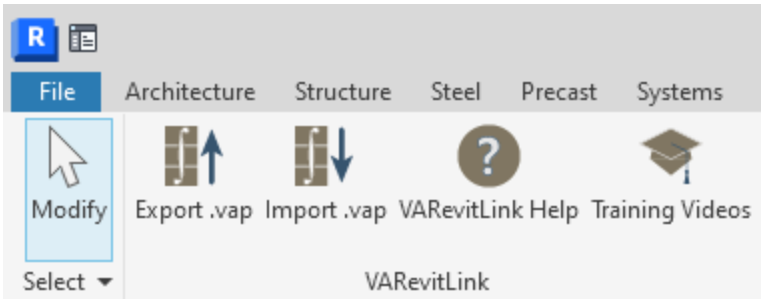


Figure 1: VAREvitLink Add-in Ribbon Panel

Getting Started

- [Release History](#)
- [FAQ Answers](#) at iesweb.com for business, licensing, installation issues.

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1.2 Release History

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VAReivitLink 23.0

Released: 10/25/2024

Works with:

- VisualAnalysis: 23.0
- Autodesk Revit: 2024

VAReivitLink 22.0

Released: 12/5/2023

Works with:

- VisualAnalysis: 22.0
- Autodesk Revit: 2024, 2023

VAReivitLink 21.0

Released: 2/2/2022

Works with:

- VisualAnalysis: 21.0
- Autodesk Revit: 2022, 2021, 2020

VAReivitLink 20.0

Released: 1/12/2021

Works with:

- VisualAnalysis: 20.0
- Autodesk Revit: 2021, 2020, 2019

VAReivitLink 19.0

Released: 8/15/2019

Works with:

- VisualAnalysis: 19.0
- Autodesk Revit: 2020, 2019, 2018

VAReivitLink 18.0

Released: 5/14/2018

Works with:

- VisualAnalysis: 18.0

- Autodesk Revit: 2019

VAREvitLink 17.0

Released: 9/16/2017

Works with:

- VisualAnalysis: 17.0
- Autodesk Revit: 2018, 2017

Version Compatibility

Previous versions of the VAREvitLink may work with newer version of Autodesk Revit by following the steps below. Note that because the VAREvitLink works as an AddIn within Revit, there is no guarantee this will work in all circumstances and with all versions of the VAREvitLink.

1. Install the VAREvitLink that works with the version of VisualAnalysis you have installed and would like to use. For example, if you are using VA 22.0, install the VAREvitLink 22.0.
 - *Example - If you are using VA 22.0, install the VAREvitLink 22.0 on your computer.*
 - The VAREvitLink can be downloaded from www.iesweb.com/downloads, and is listed under the Supplementary Downloads midway down the page.
2. Navigate to the directory: C:\ProgramData\Autodesk\Revit\Addins, and select a folder for a version of Revit that the VAREvitLink is said to work with.
 - *Example - If you are using VA 22.0, select C:\ProgramData\Autodesk\Revit\Addins\2024*
3. Copy the VAREvitLinkXX.addin file from the directory above.
 - *Example - Copy the VAREvitLink22.addin file within the C:\ProgramData\Autodesk\Revit\Addins\2024 directory.*
4. Paste the .addin file into the folder of the version of Revit you would like to use with your version of VisualAnalysis.
 - *Example - If you would like to use VAREvitLink 22.0 with Revit 2023, paste the VAREvitLink22.addin file within the C:\ProgramData\Autodesk\Revit\Addins\2023 directory.*

1.3 Exporting from Revit to VisualAnalysis



The VAREvitLink makes use of Revit's Analytical Model as the structure to export. Therefore, it is critical that you take the time to ensure your Revit Analytical Model is well defined. Please consult the Revit documentation for managing the Analytical Model if you have questions about this.

Selecting the **Export .vap** option with an active Revit project will allow you to generate a .vap file to be used in VisualAnalysis. The Export Dialog is shown in Figure 2, and will become active when the Export command is chosen.

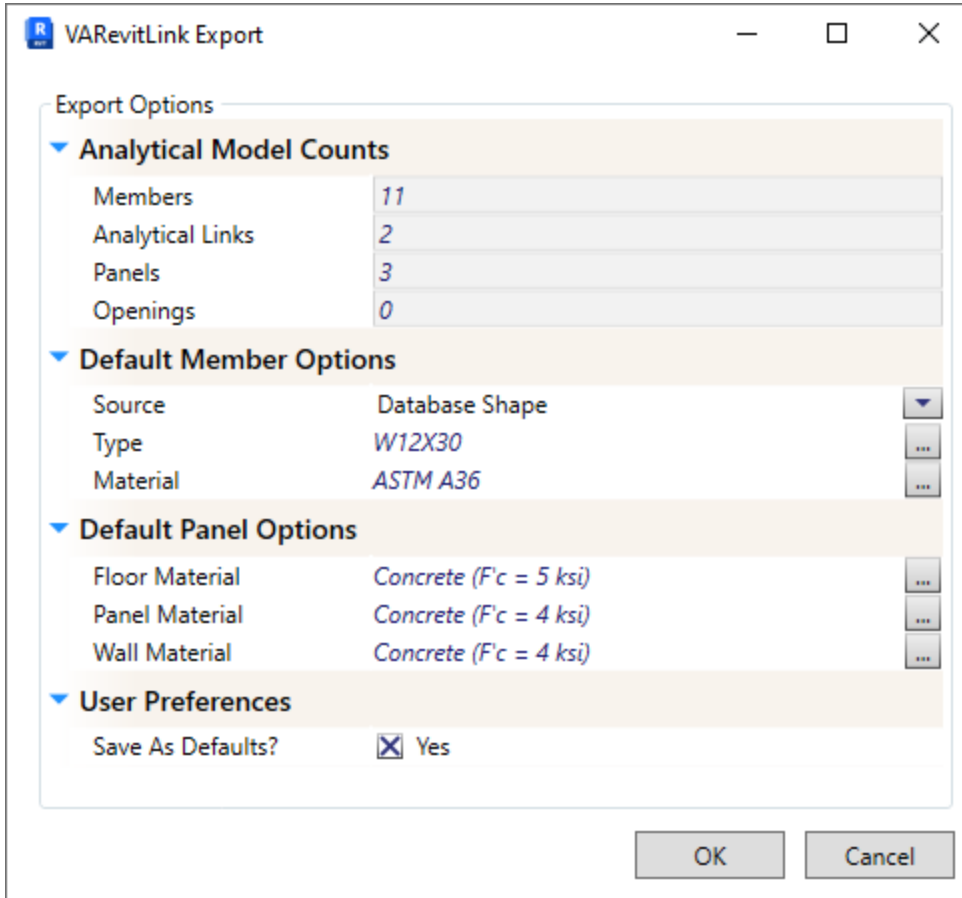


Figure 2: Export Dialog

Analytical Model Counts

Displays a summary of the items in Revit's Analytical Model.

Default Member Options

This information will be used when an analytical member cannot be matched in VA.

Source: The member source to use for Revit members with undefined sections or sections that cannot be matched.

Type: The member section type to use for Revit members with undefined sections or sections that cannot be matched.

Material: The default material to use for Revit members if the defined material cannot be matched.

Default Panel Options

This information will be used when properties of an analytical panel cannot be matched in VA.

Floor Material: The default material to use for Revit panels with a Structural Role = 'Floor' if the defined material cannot be matched.

Panel Material: The default material to use for Revit panels with a Structural Role other than 'Floor' or 'Wall' if the defined material cannot be matched.

Wall Material: The default material to use for Revit panels with a Structural Role = 'Wall' if the defined material cannot be matched.

User Preferences

The options outlined above can be saved to a User Preference file that will persist these values from session to session. The default value is 'Yes'.

After the Export Parameters have been set, select OK to save a .vap file of the project. After the .vap file is created, a Summary of the Export operation will display, similar to the one shown in Figure 3 below. The Summary will note the members and areas that were exported, as well as those that could not be exported, if any.

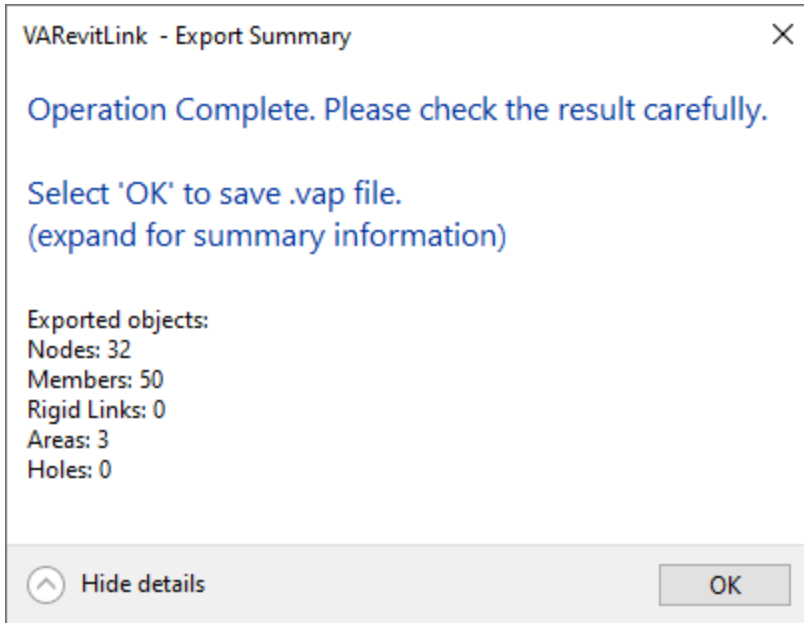


Figure 3 - Example Export Summary


Member Naming


In an attempt to facilitate cross-referencing the VA and Revit model, members created within VA will be named as follows:

1. When the Revit analytical member has a physical association, the 'Mark' parameter will be tried first.
2. If #1 does not yield a valid name, the 'Comments' parameter of the analytical member will be tried.
3. If #1 or #2 do not yield a valid name, a default name will be chosen for the VA member.

1.4 Importing from VisualAnalysis to Revit

A VisualAnalysis project can be imported into a Revit project to bring over changes made to a previously exported model (see [Exporting from Revit to VisualAnalysis](#)) or to import new objects into a Revit project.

 The VAREvitLink makes use of Revit's Analytical Model when importing the VisualAnalysis model. No changes to Revit's Physical Model will occur. Please consult the Revit documentation for managing the Analytical Model if you have questions about this.

 In order to achieve the best possible results, it is strongly recommended that any and all Family Symbols that you expect to be matched from the VisualAnalysis model are loaded into the Revit project before you initiate an import. The VAREvitLink does not load new Families or modify existing Families within the Revit project. If a Revit Family instance cannot be matched to a VA object, the item will be skipped during import.

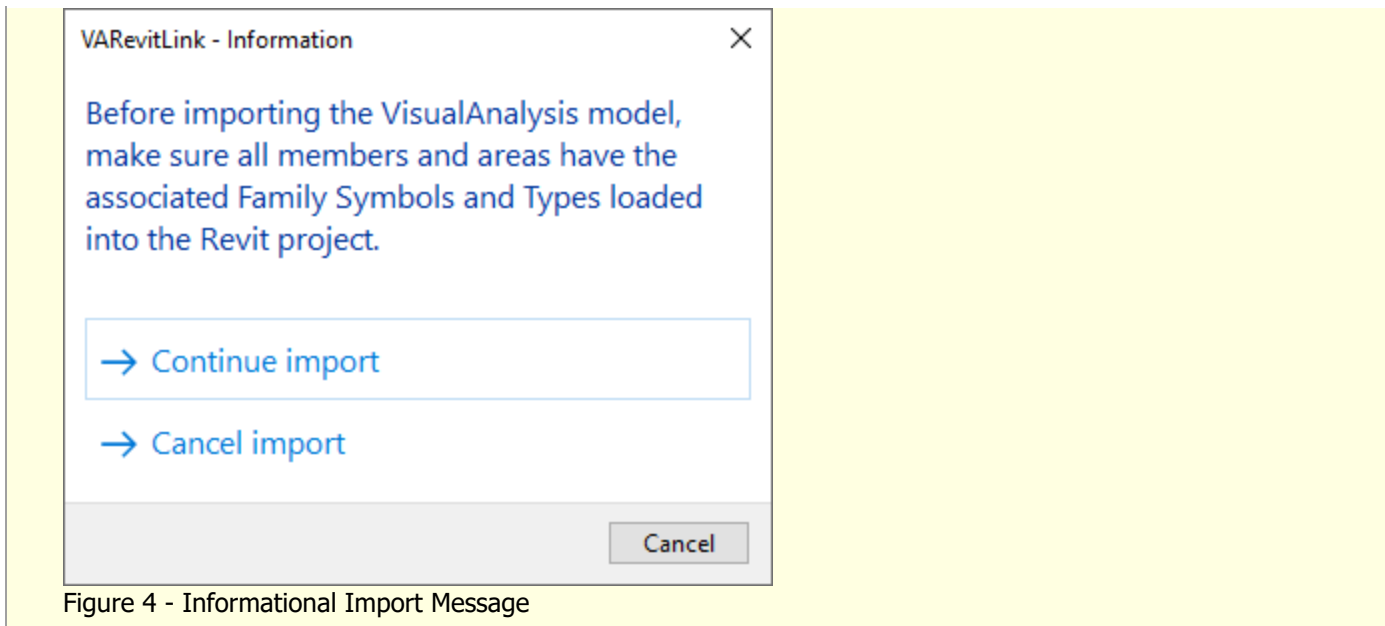


Figure 4 - Informational Import Message

💡 Ensuring the names of the member cross-section and material match in both the VisualAnalysis and Revit project before importing the .vap file will often times yield the best results.

When importing a VisualAnalysis project into Revit, the model geometry is used to match existing analytical elements and VA objects together. If the model geometry changes between the Export and Import process, the members will not be matched properly and may be re-imported into the Revit project as new objects. For this reason, it is imperative that the geometry of the Revit analytical model is well established if you plan to bring member changes back into Revit after performing an analysis within VisualAnalysis. The utmost care should be taken to ensure you have a good analytical model defined within Revit if the hope is to link the Revit and VA models together.

The VA objects imported to Revit are limited in order to retain the validity of the Revit model.

- For VA member elements, the following Revit Analytical Model information will be modified based on changes to the VA members:
 - Structural Role (Beam, Column, Member)
 - Structural Section
 - Cross-Section Rotation
 - Material
- For VA area elements, the following Revit Analytical Model information will be modified based on changes to the VA areas: (Revit floors and walls) only the Revit *WallType* or *FloorType* will be changed. If the area material or thickness was modified in VA, this change will be made in the Revit Floor/Wall material and thickness.
 - Structural Role (Floor, Wall, Panel)
 - Structural Role = Floor when the area normal vector (local z-axis) is parallel to the vertical axis (Global Z)
 - Structural Role = Wall when the area normal vector (local z-axis) aligned with a horizontal plane (Global XY)
 - Structural Role = Panel when the area normal does not meet the criteria for Floor or Wall
 - Thickness
 - Material
 - Openings

The Import Options shown below will provide information about the VA model you are importing and the current Revit

model, as shown below. Additionally, you will be able to select whether you would like to Import Members and/or Areas, as well as setting the default Symbols and Types for VA members based on their framing type (Beams, Columns, and Braces).

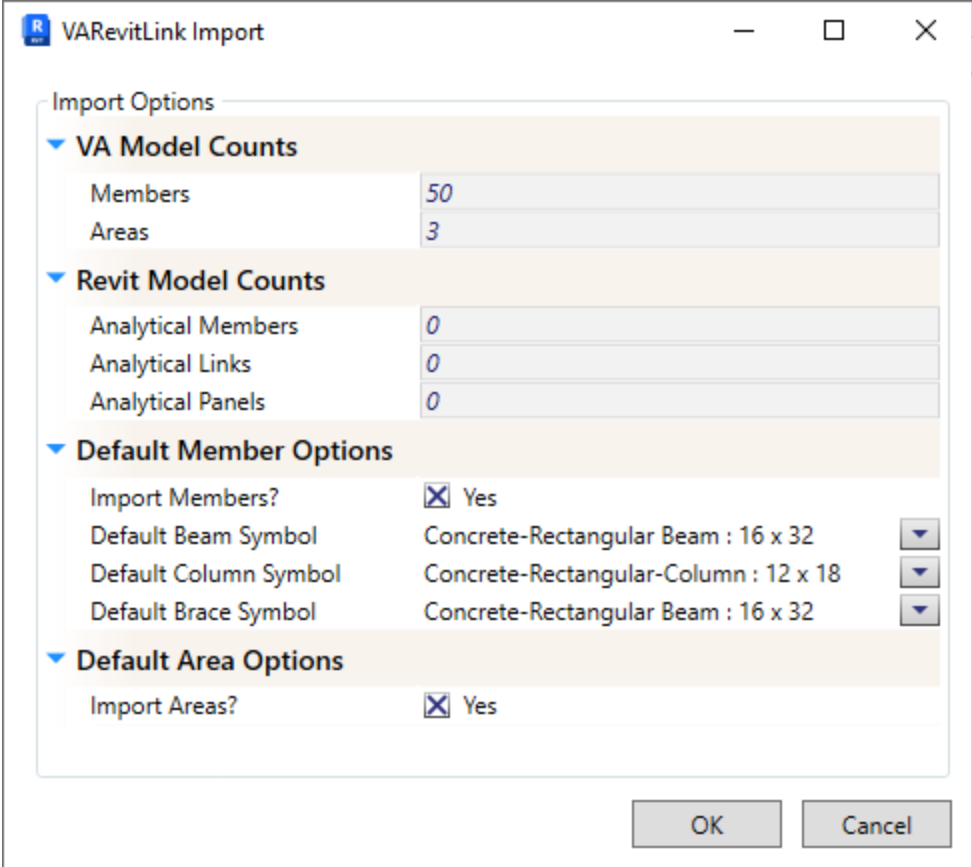


Figure 5 - Import Options

After the Import is complete, a summary of the operation will be displayed, similar to the one shown in Figure 5.

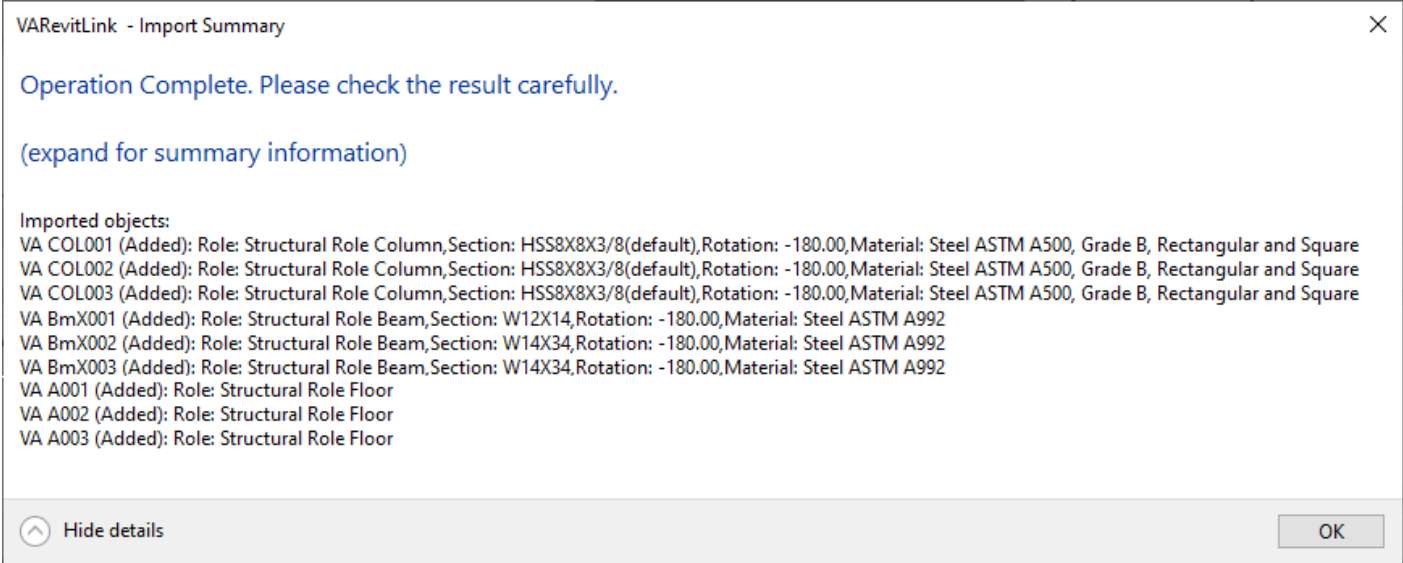


Figure 6 - Typical Import Summary

Suggest work flow

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If you would like to "Round Trip" your project (e.g. model in Revit, analyze in VisualAnalysis, merge results back to Revit), the work flow outlined below should set you up for the Export - Import process.

1. Create an Analytical Model within the Revit project.
2. Export the Revit project to a VisualAnalysis model using the [Export](#) feature.
3. Work within VisualAnalysis to add loads, provide support (boundary conditions), analyze, and design the model. Once finished, save the project.
4. Import the VisualAnalysis model into the Revit project to synchronize any changes.

1.5 Support Resources

Did you Search this Help File?

Be sure you make use of the help and support built into the software. This document can be searched, and you should try different potential terms, sometimes less is more when searching (use just the unique word or words). A Table of Contents is also available.

Do Not Contact Support For

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- **Modeling Advice.** Determining how to model a structure is your responsibility as an engineer.
- **Model Validation.** IES cannot validate your model or your results. If you can document a software defect, contact support and we will investigate further and create fixes as necessary.
- **Engineering Theory.** IES is not in the business of educating engineers. There are textbooks referenced in this help file.

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- **Telephone Support:** Not Available. We have found this to be too inefficient for everybody. With email you can attach a screen shot, a project file, and we can better direct your question to the IES expert for that product or area. Phone 'tag' takes longer than you think.
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