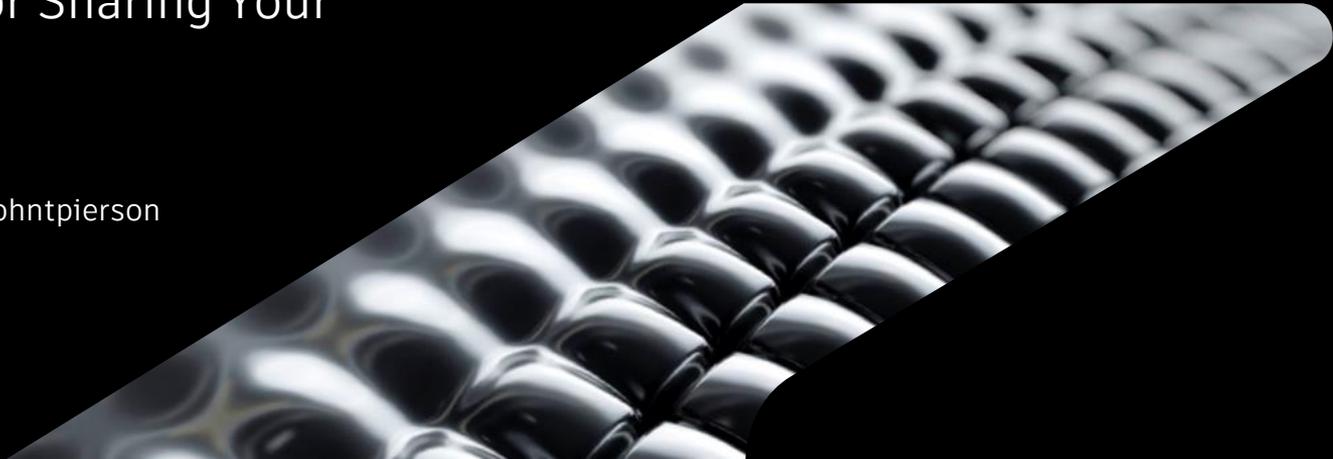




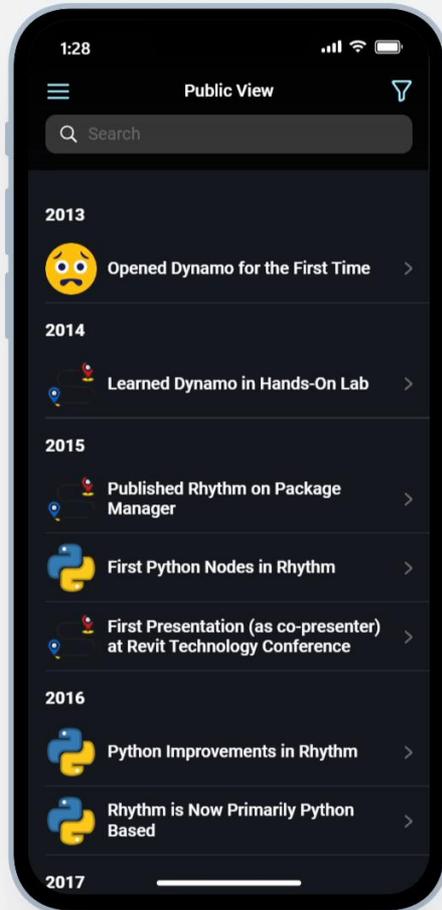
I Shipped My Scripts

Awesome Methods for Sharing Your
Dynamo Graphs

John Pierson
Design Technology Specialist | @johntpierson



My Dynamo Journey



My Dynamo Journey™

by Design Tech Unraveled

Made with Glide from a Google Sheet, without writing any code.

SHOW FULLSCREEN

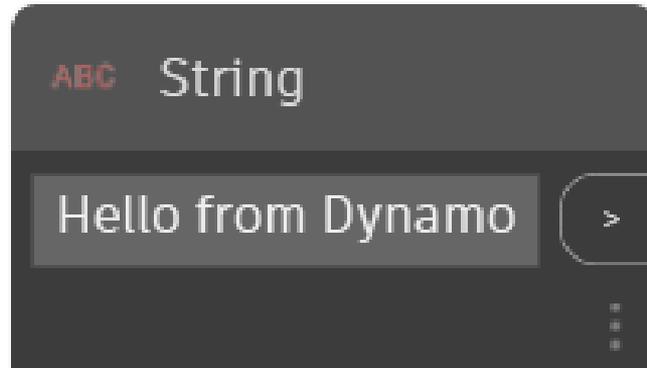
SHARE APP

**Last time we had AU
in person....**

Dynamo Nodes Looked Like This



Now They Look Like This



State of Dynamo



Dynamo Versioning

How does it work?

Dynamo Ver

How does it work?

Dynamo Versioning - Made Simple

2.13.1

Major Version - Should be compatible with all versions that start with this.

E.g. If you were to try to open a 2.x.x graph in 1.x.x, it will not work

Minor Version - New features added in backward compatible way. **E.g. graph properties (introduced in 2.12) will not break a graph but might disappear if opened in a way older version, like 2.0.4.**

Patch Version - Bugs fixed in a backward compatible way.

With the above in mind, we *should** be able to maintain compatibility for Revit 2020/Dynamo 2.0.4 - Revit 2023. / Dynamo 2.13.1

**this is dependent on package use, your revit environment and more*

Our Outline for this Class



What's Broken

Dynamo 2.13 brings a lot of new cool features. But that means a lot of stuff is broken, some of it bad. We are going to talk about it.

What's New

What is more exciting than broken stuff? New stuff. This part will be hands on.

How to Cope

Upgrading graphs to the new version is going to suck if you don't have a plan. Let's make a plan.

How to Survive

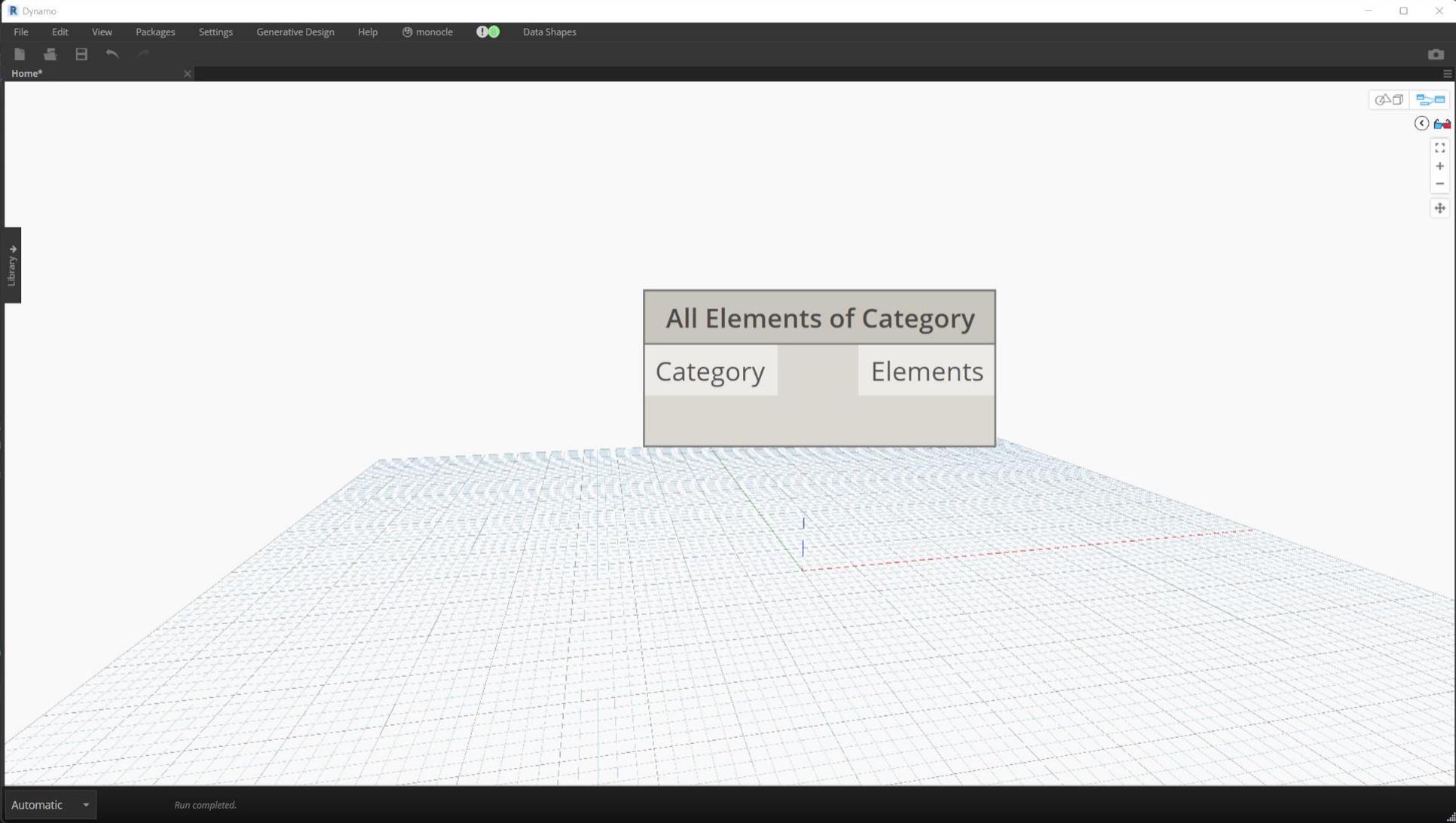
Using Dynamo has many different considerations. This part we will talk about ways to make it way better.

Drop Down Nodes

a long history of being frustrated



**Don't get me wrong
They can be great.**



All Elements of Category

Category

Elements

Library ↓

Automatic ▾

Run completed.

But...

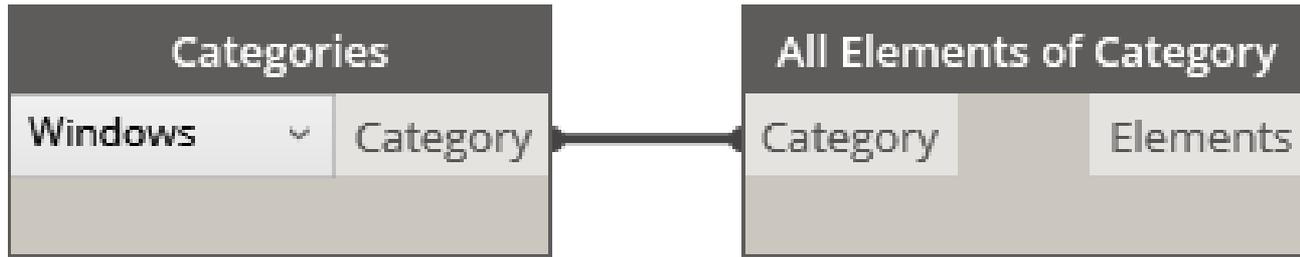
- You need to know what can (and will) break.
- This graph was made in Revit 2019 to work with walls.
- Let's see what happens when we go to use it in other versions

The image shows a screenshot of a Dynamo graph in Revit 2019. On the left, a 'Categories' node has a dropdown menu set to 'Walls' and a 'Category' output. A blue line connects this 'Category' output to the 'All Elements of Category' node on the right. The 'All Elements of Category' node has a 'Category' input and an 'Elements' output. Below the graph, a 'List' node displays a list of 11 wall elements. Each element is represented by an index, the word 'Wall', and a numerical value. The values are highlighted in green. At the bottom of the list, it shows '@L2 @L1' and '{180}'.

Index	Category	Value
0	Wall	139854
1	Wall	139855
2	Wall	139856
3	Wall	139857
4	Wall	139858
5	Wall	140003
6	Wall	140006
7	Wall	140009
8	Wall	140012
9	Wall	140015
10	Wall	140018

Dynamo 2.0.4 – Revit 2019

Same Graph..



Dynamo 2.3.1 – Revit 2020

Also Same Graph..



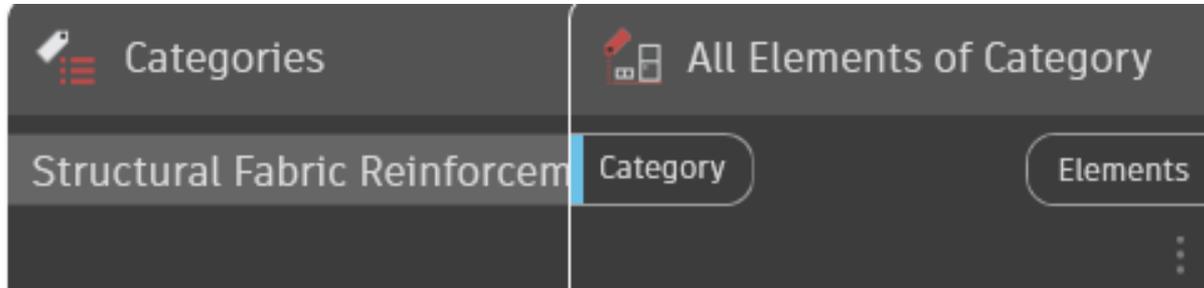
Dynamo 2.6.1 – Revit 2021

Also, also Same Graph..

Categories	All Elements of Category	
Structural Load Cases - Wind Loads ▾	Category	Elements

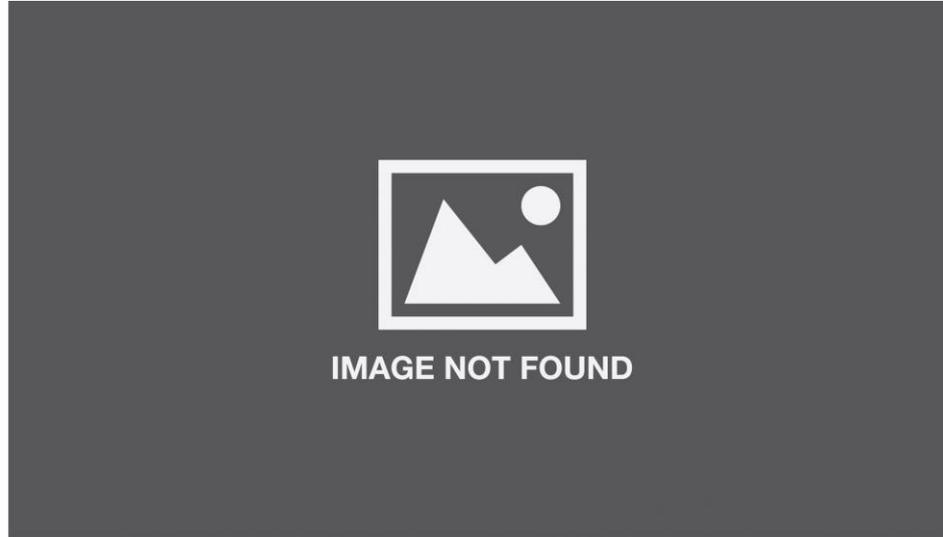
Dynamo 2.12.1 – Revit 2022

Also, also, also Same Graph..



Dynamo 2.13.1 – Revit 2023

And..



Revit 2024

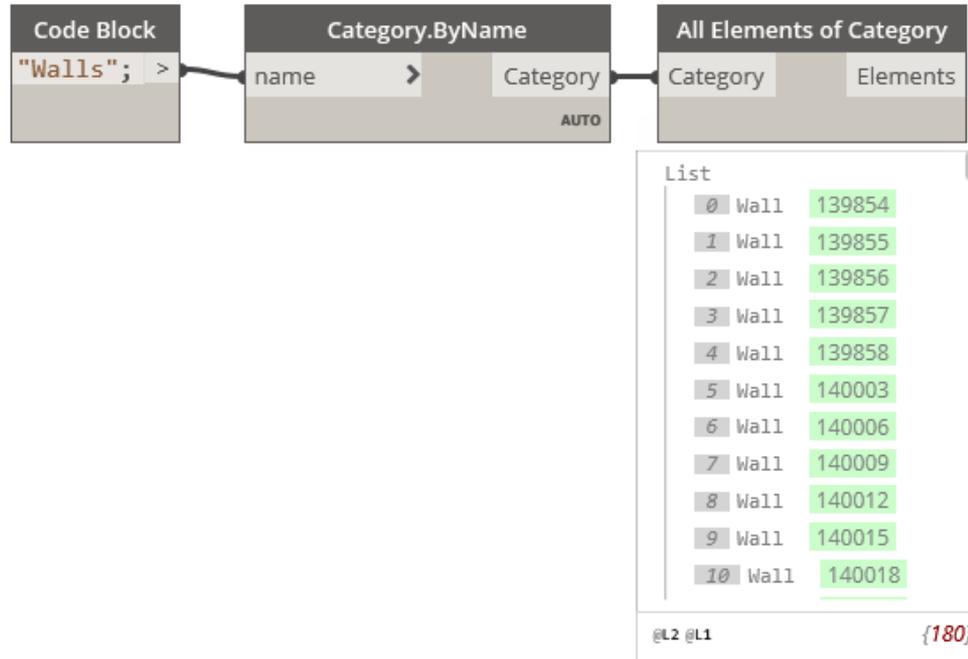
Just Kidding

**So, How do we
handle this?**

**Only use dropdowns
when you want them
to change.**



Hardcode the values unless it is changeable by your user.



Dynamo 2.3.1 – Revit 2021

**And live happily
ever after**

**Unless you are in
the initial release of
Revit 2023**

Unless

[] Code Block

```
"Ceilings";
```

Category.By Name

name > Category
AUTO

Analytical Surfaces - Ceilings

All Elements of Category

Category

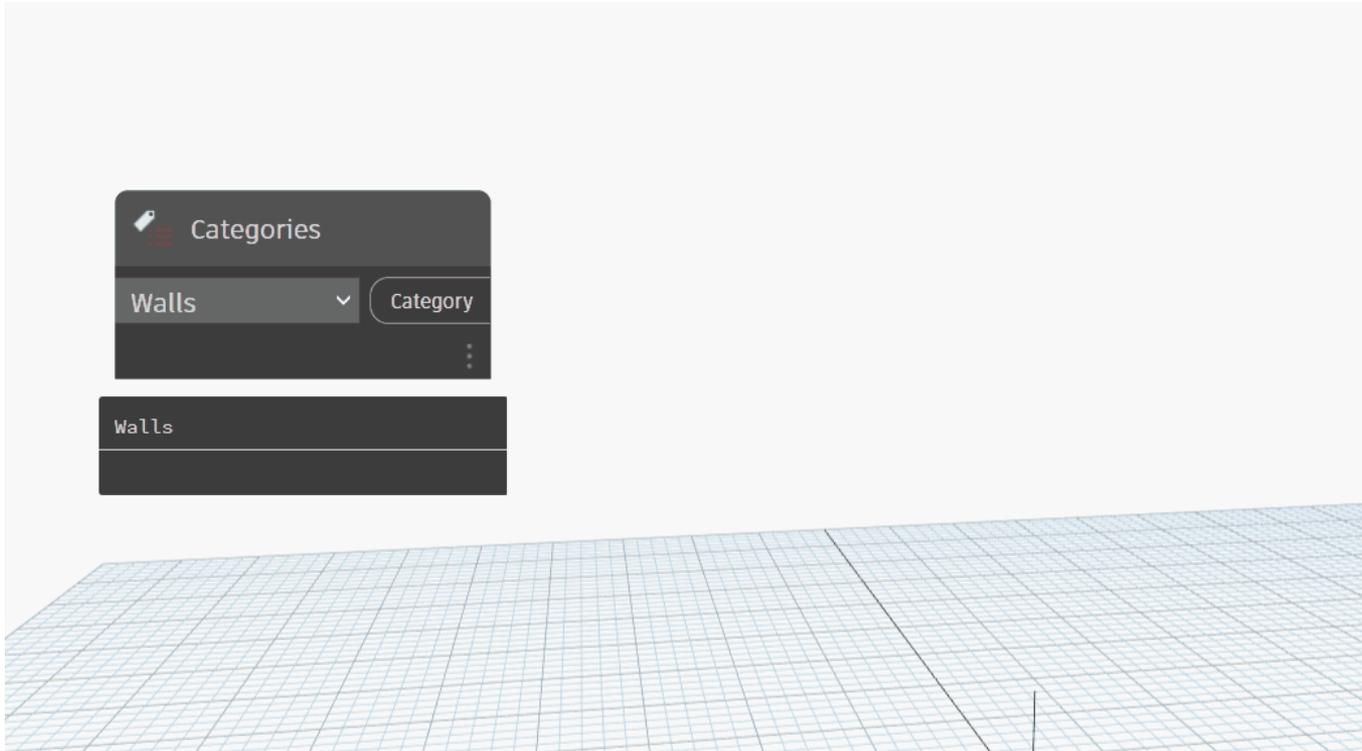
Elements

Empty List

then

So now this is my suggested method

Using Category Id as those are not supposed to change



Autodesk Suggests

To “use dropdowns as they are fixed in all supported versions* of Revit”

Now that drop down's are static in all supported Dynamo for Revit releases, I'm thinking migrating back to drop downs might be more stable overall; those IDs may change across Revit releases.

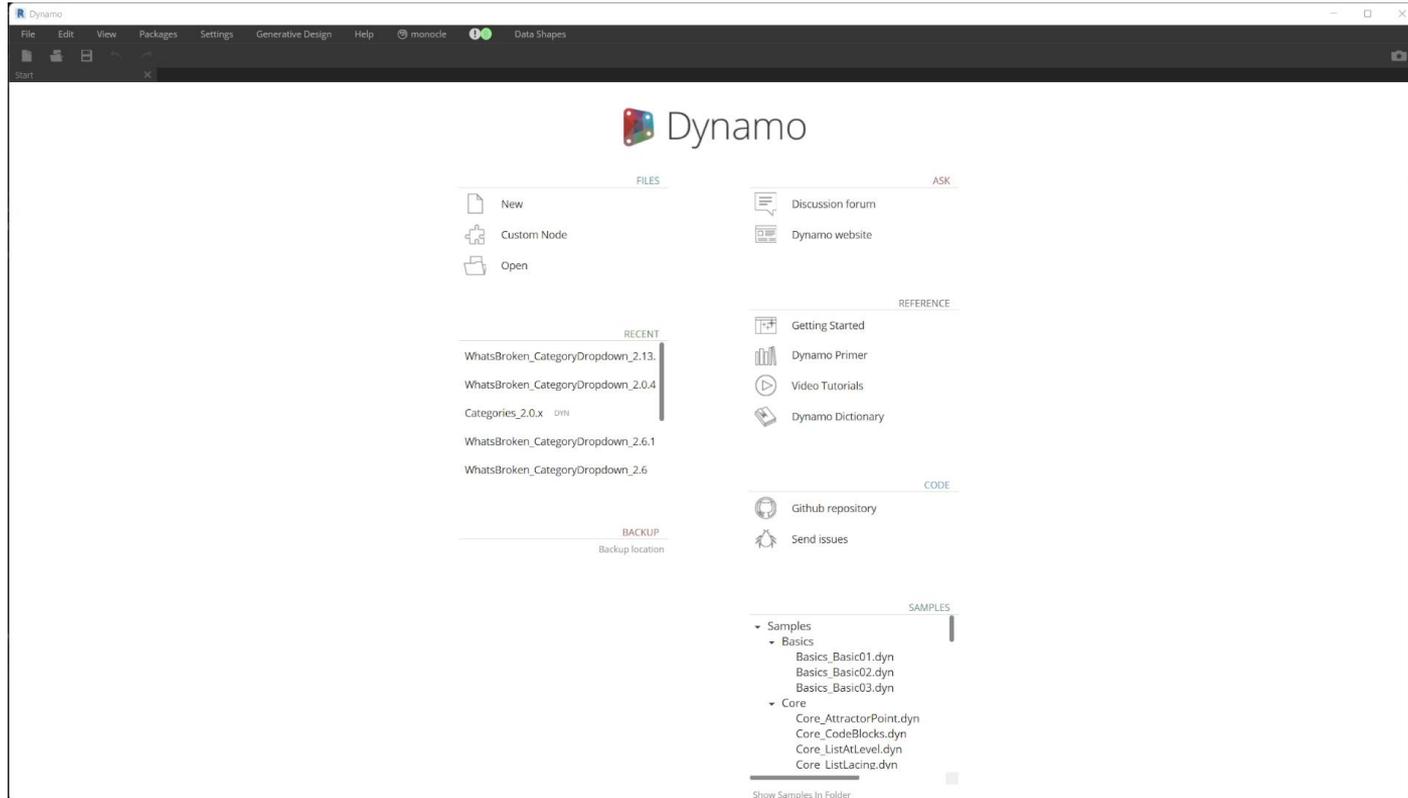


 Reply

*supported meaning 2023, 2022, 2021 products

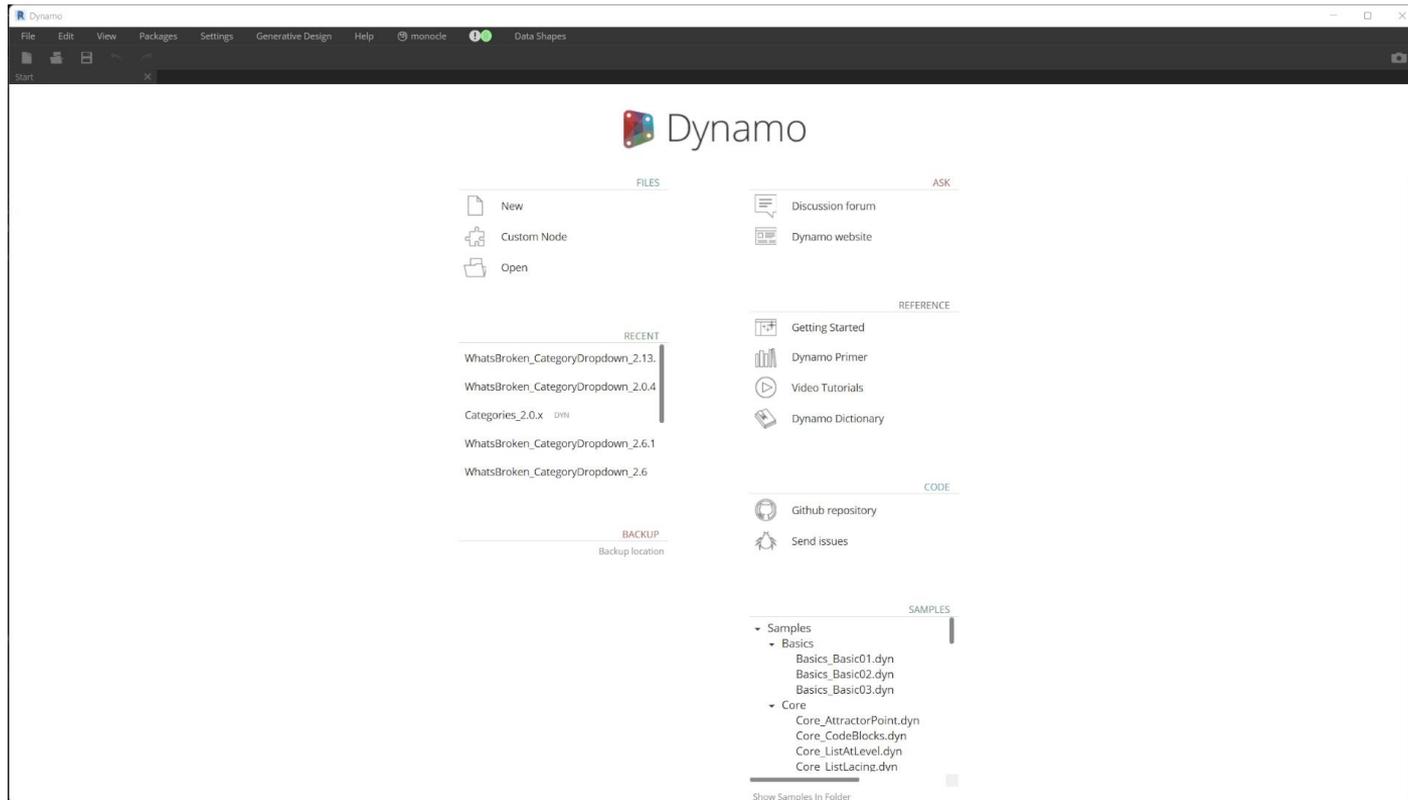
Let's Open a Dynamo Graph In Multiple "Supported" Versions

(Revit 2023/Dynamo 2.13.1  Revit 2021 / Dynamo 2.6.1)



Let's Open a Dynamo Graph In Multiple "Supported" Versions

(Revit 2023/Dynamo 2.13.1  Revit 2021 / Dynamo 2.6.1)

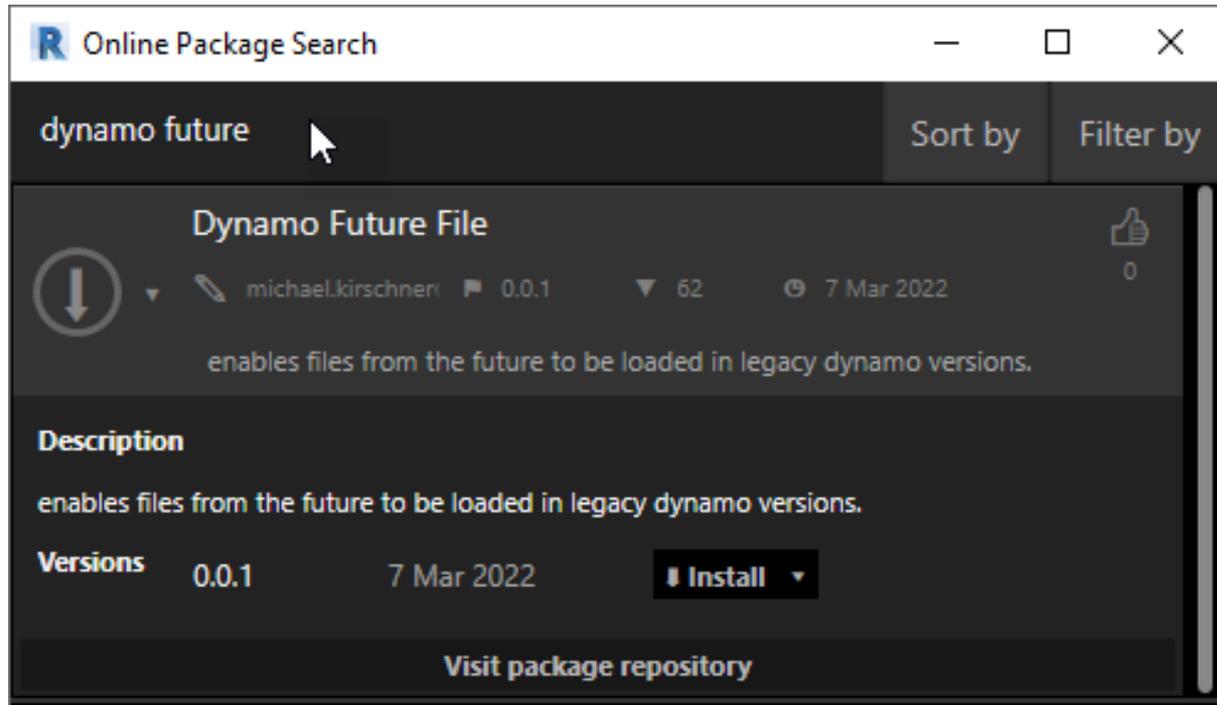


?

Input Dropdowns Were “Fixed” in Revit 2022 / Dynamo 2.12.1

But broken in all older versions of Dynamo

But there is a fix!



Python in Revit 2023 / Dynamo 2.13?

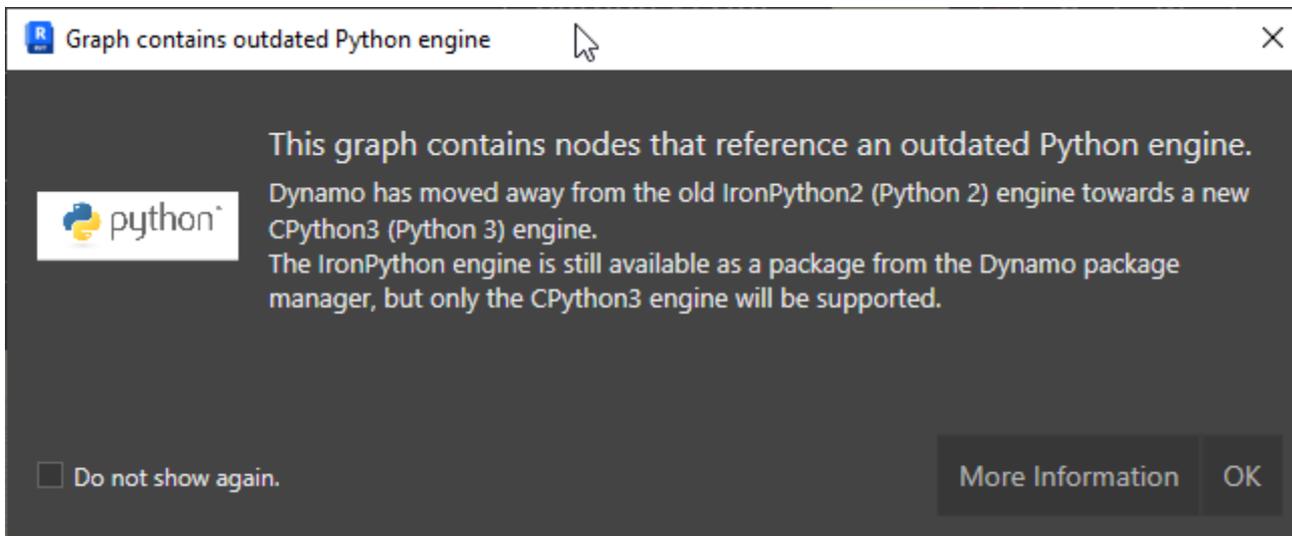
Is everything ok?



kinda

Dynamo Changed Python Engines

CPython3 is Now the Default



Dynamo

FILES

-  New
-  Custom Node
-  Open

RECENT

- AddPrefixOrSuffixToViews_2.6.1
- WhatsBroken_CategoryDropdown_
- WhatsBroken_CategoryDropdown_
- WhatsBroken_CategoryDropdown_
- WhatsBroken_CategoryDropdown_

BACKUP

Backup location

ASK

-  Discussion forum
-  Dynamo website

REFERENCE

-  Getting Started
-  Dynamo Primer
-  Video Tutorials
-  Dynamo Dictionary

CODE

-  Github repository
-  Send issues

SAMPLES

- ▼ Samples
 - ▼ Basics
 - Basics_Basic01.dyn
 - Basics_Basic02.dyn
 - Basics_Basic03.dyn
 - ▼ Core
 - Core_AttractorPoint.dyn

Iron Python 2.7



d|s



Iron Python 2.7

archi+lab



Genius loci

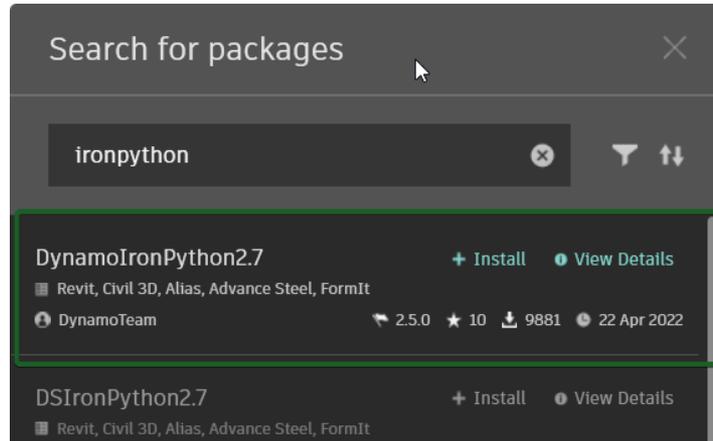


And a lot more!

IronPython 2.7

Can still be installed

- Install from the package manager
- Decision was made due to the team behind iron python not updating 2.x any longer (meaning no more security fixes)
- Basically, install at your own risk 😬



**That's it for broken
stuff**

That's

Prefix input

Custom Package: Data-Shapes v.2021.2.91

```
{ } Code Block  
1 "Text to Add";  
2 {true, false};  
3 0;
```

TextBox Data

InputName: TextBox Input
DefaultText:
IsNumberEntry:
DefaultValueIndex:
AUTO

Input

```
{ } Code Block  
1 ["-Prefix", "Suffix"];  
2 {true, false};  
3 0;
```

RadioButtons Data

InputName: RadioButton Input
Keys:
Values:
DefaultValueIndex:
AUTO

TreeView Input

InputName: UITreeView Data
ItemsIsTitle:
Height:
AUTO

Show our form

Custom Package: Data-Shapes v.2021.2.91

```
{ } List Create  
item0 + = list  
item1  
item2  
...  
1 1;
```

MultipleInputForm ++

Description_optional: User Inputs
Logo_optional: Was Run
ButtonText_optional: Was Cancelled
Inputs:
Toggle:
CancelButtonText_optional:
MaxHeight_optional:
Width_optional:
LabelWidth_optional:
AUTO

Our outputs from our form

If there is a new prefix, the

```
{ } Code Block  
1 //the views to rename  
2 x{x[2];  
...  
{ } Code Block  
1 //our prefix  
2 x{x[3];  
3 " ";  
...  
{ } Code Block  
1 //true for prefix, false for suffix  
2 x{x[3];  
...  
{ } Code Block  
1 =  
2 x  
3 y  
4 AUTO
```

views by type

Element Type: element
Element Name: element
List.GroupByKey: list, groups, keys, uniqueKeys
List.Create: item0, lists, item1
List.Transpose: list, amount
List.Flatten: list

For now.



Where are we



What's Broken

Dynamo 2.13 brings a lot of new cool features. But that means a lot of stuff is broken, some of it bad. We are going to talk about it.

What's New

What is more exciting than broken stuff? New stuff. This part will be hands on.

How to Cope

Upgrading graphs to the new version is going to suck if you don't have a plan. Let's make a plan.

How to Survive

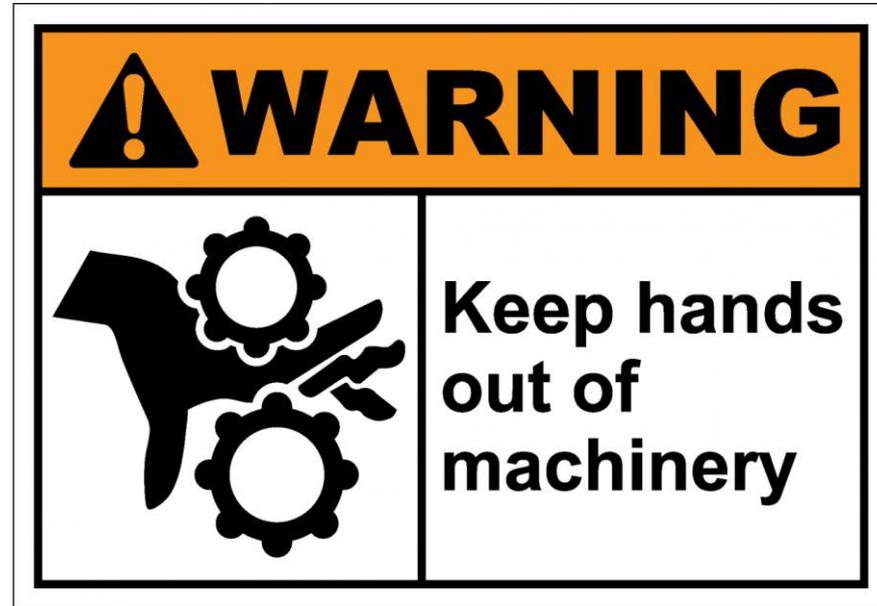
Using Dynamo has many different considerations. This part we will talk about ways to make it way better.

live demo

Live Demo of New Features

The Plan

- Graph Properties
- Annotation Enhancements
- Dynamo Player Enhancements
- All while making a keynote color coder graph.



Where are we



What's Broken

Dynamo 2.13 brings a lot of new cool features. But that means a lot of stuff is broken, some of it bad. We are going to talk about it.

What's New

What is more exciting than broken stuff? New stuff. This part will be hands on.

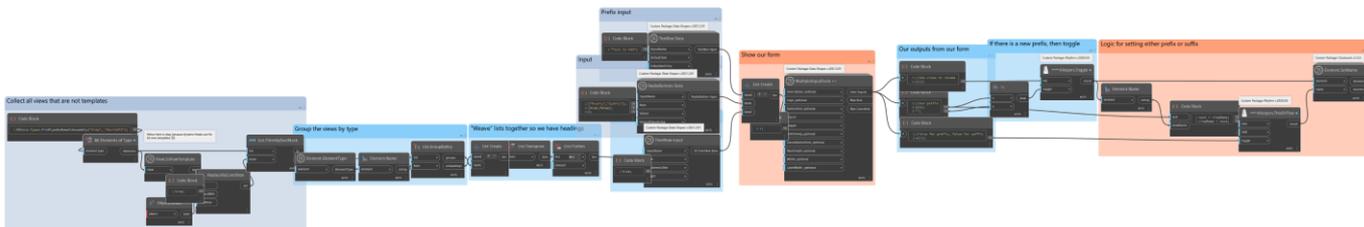
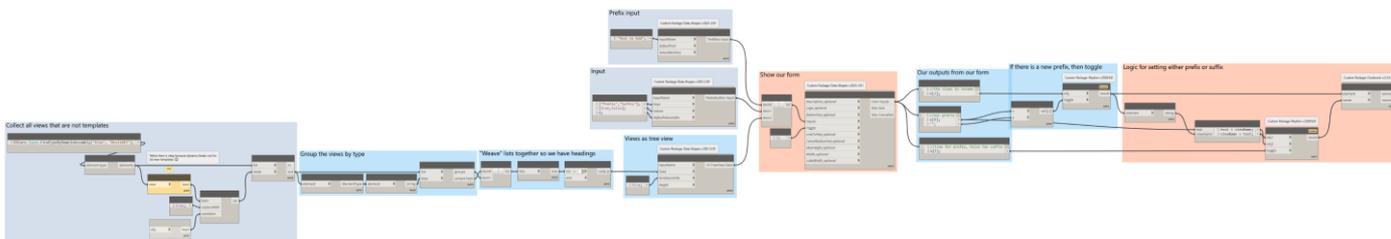
How to Cope

Upgrading graphs to the new version is going to suck if you don't have a plan. Let's make a plan.

How to Survive

Using Dynamo has many different considerations. This part we will talk about ways to make it way better.

Upgrading Dynamo Graphs



live demo

Don't Map Packages to Network Drives



Why?

github.com/DynamoDS/Dynamo/wiki/Release-Notes

- Volume conversion fixed in "Convert Between Units" node

Known Issues:

- For custom nodes, using dot-notation in node Names or Categories will result in additional nested sub-categories. The "." will work as a delimiter to determine the additional hierarchy. This is new behavior in the library for Dynamo 2.0.
- Dynamo 2.0 has a conflict with Revit 2018.2's implementation of PnID Modeler resulting in a blank library browser pane. This issue is not present in 2018.1 or 2018.3, or Revit 2019, just 2018.2. If you want to use 2.0 with Revit 2018.2, you will need to remove the the manifest file C:\Program Files\Autodesk\Revit 2018\AddIns\PnIDModeler\PnIDModeler.addin
- If the network drive pointed to by "Manage Node and Package paths" is > 1TB in size loading Dynamo may take a minute or more, irrespective of actual package size. We recommend drive size of 100GB or smaller.

Best Practice

Use the built-in Dynamo Packages location and pull packages in

Using Dynamo

File Architecture Structure Precast Systems Insert Annotate Massing & Site Collaborate View Manage Add-Ins Relay Modify

Modify Materials Snaps Project Information Parameters Service Project Parameters Shared Parameters Purge Unused Global Parameters Project Units Settings

Structural Settings MEP Settings Panel Schedule Templates Additional Settings Location Coordinates Position Project Location

Add to Set Pick to Edit Design Options Main Model Design Options

Create Study Explore Outcomes Manage Links Decal Starting View Phasing Selection Inquiry

Save Load Edit Warnings IDs of Selection Select by ID Macros Visual Programming

Dynamo Dynamo Player

Project Browser - rac.advanced_sample_p... Properties 01 - Entry Level

Views (all) Floor Plans 01 - Entry Level Floor Plan

Packages

New Copy Paste Undo Redo Sort View Search Packages

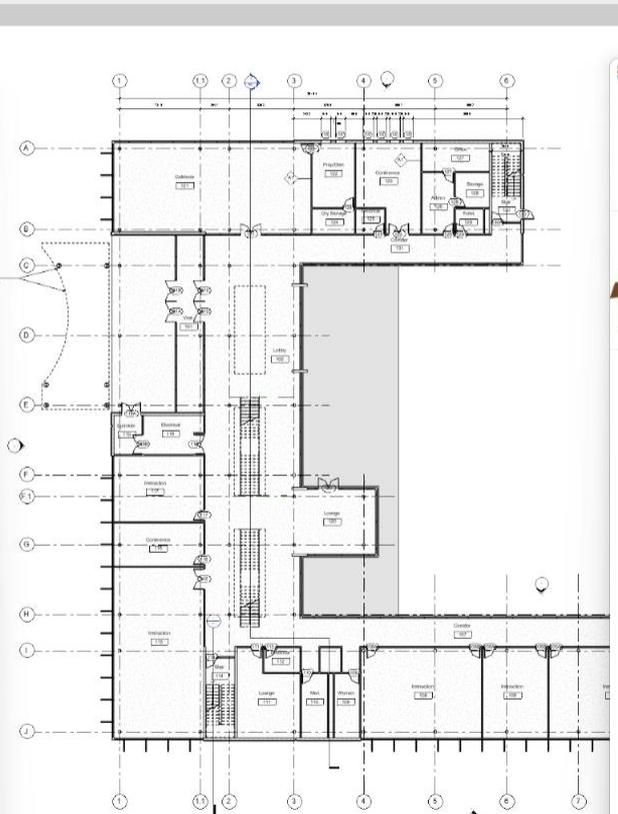
Dynamo > Dynamo Revit > 2.13 > Packages

Quick access OneDrive OneDrive - Parallax Team Inc This PC Network

Name Date modified

This folder is empty.

0 items | (Disk free space: 1.51 TB) Computer



Dynamo Player

Choose Folder 00_Dynamo Player Sample

Search

Sync Packages

This will sync packages from a given path. This can be a local path, such as, Dropbox, Google Drive, OneDrive, or a server path.

rac_advanced_sample_project.rvt

Legend Schedules/Quantities (all) Area Schedule (Gross Building) Properties help

Title on Sheet Sheet Number A1

Apply 1:100 Main Model

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.



Or..

On Revit Startup with a Custom Plugin

fetch for Revit

a Revit plugin to enable simple package duplications from
(locally accessible) folders

- Quick access
- OneDrive
- OneDrive - Parallax Team Inc
- This PC
- Network

Name	Date modified	Type	Size	Product version
Fetch.exe	8/15/2022 12:23 PM	Application	1,807 KB	1.0

Other Options for Syncing Packages

Including (but not limited to)

- Windows Startup Scripts
 - Occurs at User Logon
- Utilizing Your Deployment Tools
 - Parallax Uses Pragmatic Praxis (ask aaron for more info in the exhibit hall)
- ~~• Emailing your users every morning to copy new Dynamo packages~~

Our Outline for this Class



What's Broken

Dynamo 2.13 brings a lot of new cool features. But that means a lot of stuff is broken, some of it bad. We are going to talk about it.

What's New

What is more exciting than broken stuff? New stuff. This part will be hands on.

How to Cope

Upgrading graphs to the new version is going to suck if you don't have a plan. Let's make a plan.

How to Survive

Using Dynamo has many different considerations. This part we will talk about ways to make it way better.



Shipping Your Scripts

In Revit 2023, Use all the New Stuff in Dynamo Player

Dynamo Player 2.13

Use These Features Specifically

- Mapped Folders
 - Different folders for different tasks
- Graph Properties
 - Include a description and thumbnail!
- Pinned Notes to Nodes
 - Give your user more context
- Include extra metadata
 - regarding package use, expected parameters, etc. Get creative!

Investigate Other Ways to Utilize DYNs

Orkestra

<https://www.orkestra.online/>

- From the creators of the Data-Shapes Dynamo package
- Offers free tier and premium tier
- Deploy your Dynamo graphs to the cloud and sync to a ribbon in Revit, Civil3d and others
- Premium version handles packages for you



Create, deploy & scale Dynamo
scripts

like never before

 REVIT

 Dynamo

 Civil3D

 RHINO

WHAT ORKESTRA CAN DO FOR YOU

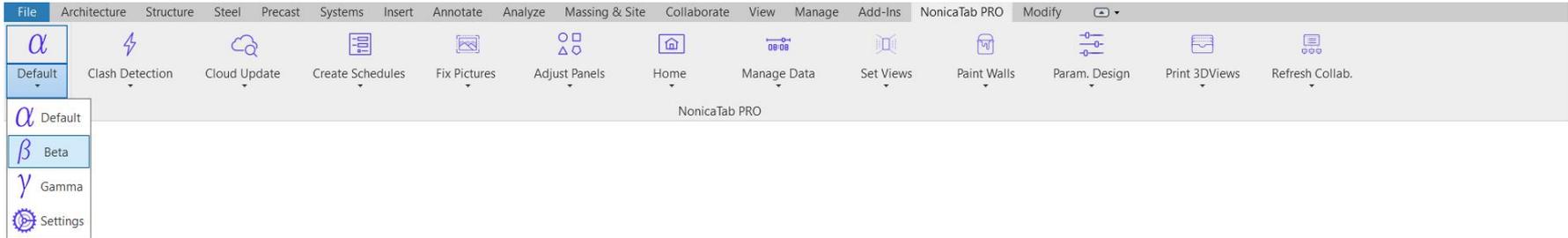
NonicaTab

<https://nonica.io/>

- Nonica allows you to add Dynamo graphs directly to your ribbon.
- Free plan includes 12 Dynamo graphs as buttons
- Has premium tier that includes additional features

NonicaTab

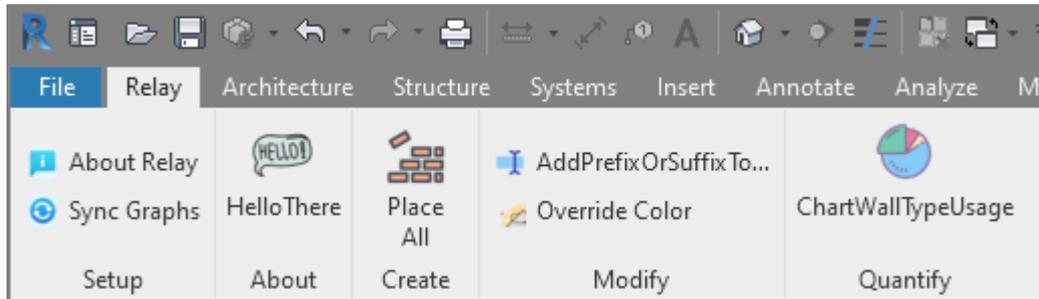
<https://nonica.io/>



Relay

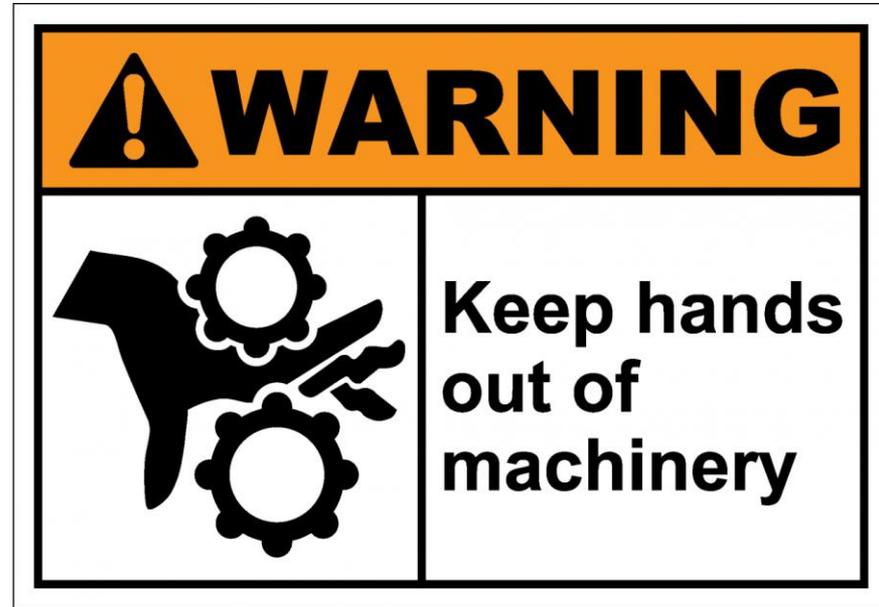
<https://github.com/johnpierson/Relay>

- Relay adds Dynamo graphs to the ribbon as well.
- Reliant on folder structure
- Open-Source (free) with limited support
- The result of me getting curious how to add Dynamo graphs to the ribbon after seeing it be done a lot.



Live Demo of Relay

- Syncing Graphs
- Running Graphs
- Opening the hood to the graphs 😊



Closing Thoughts



In Order to Make Your Dynamo Journey a Successful One

Document | Test | Share

Why Share?



Carl Storms
@theBIMsider

Quote of the conference from @60secondrevit "If you are generous your world might just get a whole lot bigger!"

And the @UKDynUG #DynamoDay Intermediate workshop kicks off to a packed house & smiling @ThatBIMthing & @60secondrevit



jean gilbert @60secondrevit - Nov 14, 2017
Finally got to meet this guy at #AU2017! @albertotono3



Hanging out with @Twiceroadsfool! #AU2017



**“No one is going to know
what you can do if you do
not talk about it.”
-Adam Savage**



Thank You

John Pierson

@johntpierson | parallaxteam.com | designtechunraveled.com



Autodesk and the Autodesk logo are registered trademarks or trademarks of Autodesk, Inc., and/or its subsidiaries and/or affiliates in the USA and/or other countries. All other brand names, product names, or trademarks belong to their respective holders. Autodesk reserves the right to alter product and services offerings, and specifications and pricing at any time without notice, and is not responsible for typographical or graphical errors that may appear in this document.

© 2022 Autodesk. All rights reserved.