Dynamo for Revit
More Baby Steps for the Non-Genius

Jay Polding & Hany Iwamura
Overview

How do you go from crawling to running Dynamo for Revit?
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• Although we do expect that you know Revit, no prior Dynamo knowledge is needed.
• You can expect to walk out of this class with…
  • Practical Dynamo example files
  • Confidence and inspiration needed to run with Dynamo
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- We have completely updated this follow-up to our 2016 AU presentation.
- Link to presentation on AU website…
- There will be a live QA session during AU2020, please check the website for details
- We are ‘recording live in one take’
About the speaker

Jay Polding

Registered Designer in Ontario, Canada
AEC Industry Account Manager
SolidCAD, Largest Canadian Platinum Autodesk Reseller
Help people in the AEC Industry succeed in their use of design technology.

• Project BIM consulting totaling over 1,000,000 SF (100,000 m²)
• Trained over 2500 professionals in BIM i.e. Revit, Navisworks
• Author of 6 Best-Selling Revit Instructional Videos for Infinite Skills
• Revit in Plain English Blog over 10 years with over 700,000 visits
About the speaker

Hany Iwamura

- Director of Digital Practice at Henriquez Partners Architects in Vancouver, Canada
- Lead HPA vision of digital design technologies
- Co-founder of the Vancouver Computational Design User Group
- Focus on how we can use technology to recruit and retain talent
Dynamo is ideal when...
Dynamo is ideal when...

AUTOMATING REPETITIVE TASKS
Rename Views
Renumbering
Create Sheets

COMMUNICATE WITH OTHER APPLICATIONS
Importing data from Excel
Importing geometry from Rhino

AUTOMATE QUALITY CONTROL TASKS
Delete all Imported Line
Finding CAD imports in model
Change all Text notes to Uppercase
Intuitively Review Warnings
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Dynamo is NOT ideal when...
Dynamo is NOT ideal when...

• LESS TIME IN REVIT, OR A TOOL ALREADY EXISTS

• DISTRIBUTING TO MANY PEOPLE WITHOUT TRAINING

• YOU TRY TO DO TOO MUCH IN ONE GRAPH

• TRACKING LIVE DATA IN THE MODEL
How much do you really need to know?
How much do you really need to know?
How much do you really need to know?

English Language
How much do you really need to know?

150,000
WORDS

2000
MOST COMMON
WORD

160
MOST COMMON
PHRASES

English Language
How much do you really need to know?

150,000 WORDS

2000 MOST COMMON WORD

160 MOST COMMON PHRASES
How much do you really need to know?

- 150,000 words
- 5,000 nodes
- 2,000 most common words
- 25 most common nodes
- 160 most common phrases
- 10 most common phrases
How much do you really need to know?

150,000
WORDS

5,000
NODES

2000
MOST COMMON
WORD

25
MOST COMMON
NODES

160
MOST COMMON
PHRASES

10
MOST COMMON
PHRASES

Dynamo
How much do you really need to know?

150,000 WORDS

5,000 NODES

2,000 MOST COMMON WORD

25 MOST COMMON NODES

160 MOST COMMON PHRASES

10 MOST COMMON PHRASES
Live Examples

- Revit is great at number things automatically. But renumbering is not automatic.
- Class example: Dynamo Graph that renumbers parking spaces and more.
- Most common task, called Get and Set
- User-friendly interface of Dynamo Player
- Review the Excel features of Dynamo.
Example 1: Get and Set
Numbers & Strings
Numbers & Strings

Numbers

150 + 150 = 300
Numbers & Strings

Numbers

150 + 150 = 300

Strings

F-150 + F-150 = F-150
Filter
Filter

- Filtering using BoolMask Node
- Add Groups for clarity
- Watch Node to see outputs and match list lengths
- SortbyKey Node sorts list automatically
Filter
Grocery List

• Breakfast
  o eggs
  o bacon
  o bread

• Lunch
  o salad
    ▪ lettuce
    ▪ croutons
    ▪ dressing
    ▪ cherry tomatoes
  o Sandwich
    ▪ bread
    ▪ chicken
    ▪ mayo

• Dinner
  o App.
    ▪ Coconut shrimp
  o Main
    ▪ meat
    ▪ potatoes
    ▪ onions
    ▪ rice
  o Dessert
    ▪ ice cream
    ▪ coffee
Filter

Only get Breakfast

• Breakfast
  - eggs
  - bacon
  - bread

• Lunch
  - salad
    - lettuce
    - croutons
    - dressing
    - cherry tomatoes
  - Sandwich
    - bread
    - chicken
    - mayo

• Dinner
  - App.
    - Coconut shrimp
  - Main
    - meat
    - potatoes
    - onions
    - rice
  - Dessert
    - ice cream
    - coffee
Filter
Only get Veggies

- Breakfast
  - eggs
  - bacon
  - bread
- Lunch
  - salad
    - lettuce
    - croutons
    - dressing
    - cherry tomatoes
  - Sandwich
    - bread
    - chicken
    - mayo
- Dinner
  - App.
    - Coconut shrimp
  - Main
    - meat
    - potatoes
    - onions
    - rice
  - Dessert
    - ice cream
    - coffee
Filter
Only get items over $5.99

• Breakfast
  o Eggs
  o bacon
  o Bread

• Lunch
  o Salad
    ▪ Lettuce
    ▪ Croutons
    ▪ Dressing
    ▪ cherry tomatoes
  o Sandwich
    ▪ Bread
    ▪ chicken
    ▪ mayo

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  o Main
    ▪ meat
    ▪ potatoes
    ▪ onions
    ▪ rice
  o Dessert
    ▪ ice cream
    ▪ coffee
Filter
Only get items over $5.99

- Breakfast
  - Eggs $3.29
  - Bacon $6.99
  - Bread $3.29

- Lunch
  - Salad
    - Lettuce $2.99
    - Croutons $3.49
    - Dressing $2.99
    - Cherry tomatoes $5.99
  - Sandwich
    - Bread $3.49
    - Chicken $13.22
    - Mayo $3.99

- Dinner
  - App.
    - Coconut shrimp $10.99
  - Main
    - Meat $16.99
    - Potatoes $5.99
    - Onions $2.50
    - Rice $5.99
  - Dessert
    - Ice cream $6.49
    - Coffee $10.99
Filter
Only get items over $5.99

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<td>$3.29</td>
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<tr>
<td>bacon</td>
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<td>True</td>
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Example 2: Filter
Getting Help on Dynamo Forum

• **What is it, Where is it?**
  - https://forum.dynamobim.com/t/number-curtain-panels-based-on-model-line/15098/7
  - Good way to know which Nodes to use

• **How to ask the questions**
  - Use search tool first, add to existing thread if needed
  - Clear explanation of the specific problem you are trying to solve
    - Include an image of what you want to do
    - Include sample Dynamo graph
  - If you find the answer on your own, provide it in the Forum. Close the loop.
Dynamo Player

- There are people who make Dynamo Graphs and people who USE Graphs. Not always the same person.
- Edit Inputs
- Rename nodes
- Example graphs
  - Surface for Structure; Export to Excel
  - Duct Hangers Mech
Example 3: Dynamo Player and Export to Excel
Dynamo “Gotcha’s”
Dynamo “Gotcha’s”

- **Geometry Scaling**
- Drop down lists – Might change on re-open
- Import Excel - file path (not so fast)
- In the middle of something?? Dynamo will wait
- Select model element(S). To complete, click FINISH in Revit
- Is Dynamo is slow? Try disabling your Add-ins.
- Math nodes are not limited to numbers.
- Dynamo script in batches (close/open dynamo file or cut/paste elements)
- Don’t panic, You can undo Dynamo tasks
- Save Dynamo AND Revit before running graph.
- Searching for node: sometimes there is a space, sometimes there is a period(.)
- Getpar & Setpar… no need to type the full name
- Shift to move many wires
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**How to disable add-ins for Revit**

**Issue:**
How to disable add-ins for Revit.

**Causes:**
There may be an occasion where Revit needs to be tested with add-ins disabled. In some cases, Revit may fail to launch or will crash with certain add-ins or due to add-in corruption.

**Solution:**
Do the following to disable add-ins:

1. Close Revit.
2. Locate the following folder: C:\ProgramData\Autodesk\Revit\Addins\[Version].
3. Temporarily move the add-in files from the folder above to another location.
4. Launch Revit. Add-ins will be disabled.
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Conclusion
Deep Blue vs Garry Kasparov
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- When you’re working on a tough automation problem, stick at it. Once it’s solved, it’s solved forever and for everyone.
Deep Blue vs Garry Kasparov

- When you’re working on a tough automation problem, stick at it. Once it’s solved, it’s solved forever and for everyone.

Pick your battles

- Is there something made already? i.e. CTC Tools
- Does it need to be programmed by a pro?
- Dynamo is a ‘power-tool’ for your craft
Dynamo is a ‘power-tool’ for your craft

- Using a power tool can speed up your work and even improve quality
- Power tools allow you to build things that hand-tools do not. You may get fresh ideas.
Thank you!
Enjoy AU2020!