NOVELIS PLANT CRANE SIMULATION

Zach Buran

Novelis

ADITYA BIRLA
NOVELIS

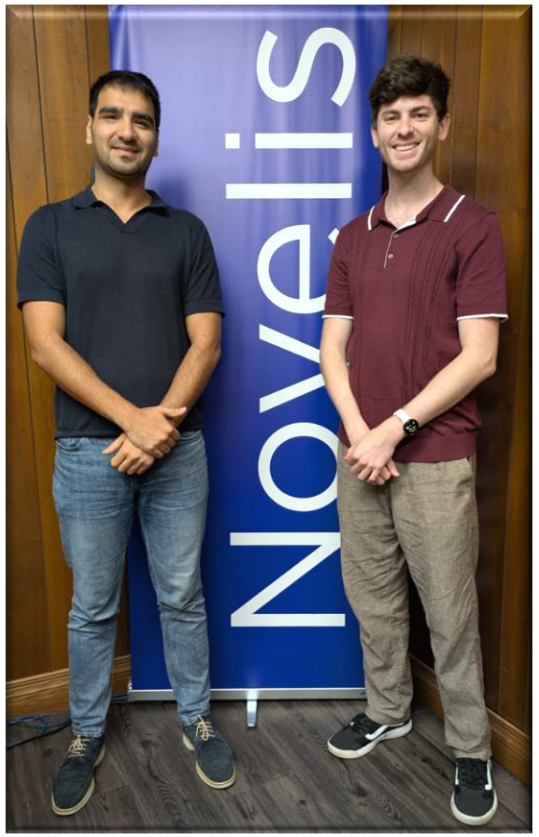
BACKGROUND

Novelis

- Simulation Engineer at Novelis
- 8 years of simulation experience
- Industrial Engineer from Georgia Tech
- Member of National Stuttering Association

Abdurrahman Yavuz

Zach Buran



Georgia Institute of Technology

nsa
National Stuttering Association

PRESENTATION AGENDA

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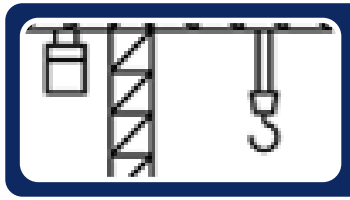
1. Project Overview



2. Simulation Design

3. Simulation Analysis

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4. Novelis Impact

NVIDIA OMNIVERSE

5. Omniverse Technical Deep Dive

EXECUTIVE SUMMARY

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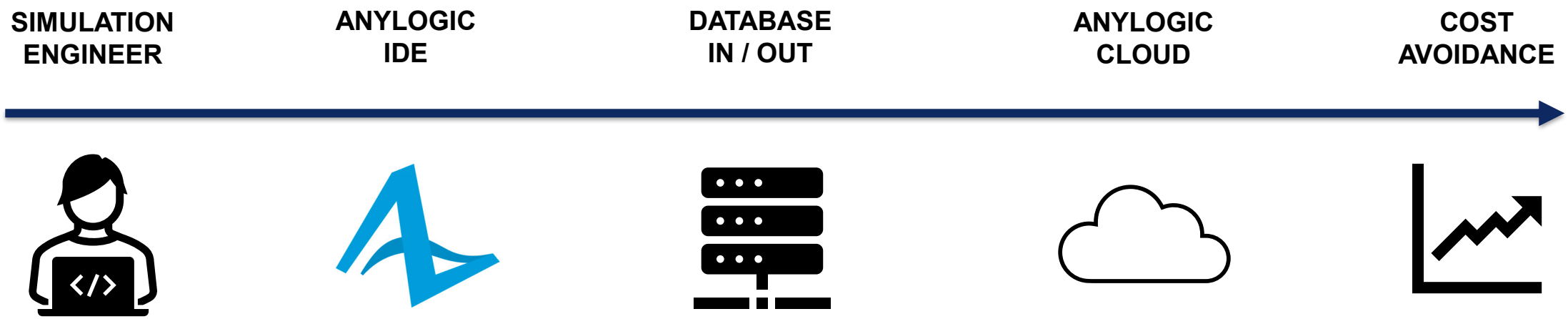
- Assessed crane capacity at Novelis using AnyLogic.
- Stress-tested performance to confirm production feasibility.
- Showed existing crane could meet targets with minor improvements.
- Delivered scalable simulation to support business growth.



WHY ANYLOGIC?

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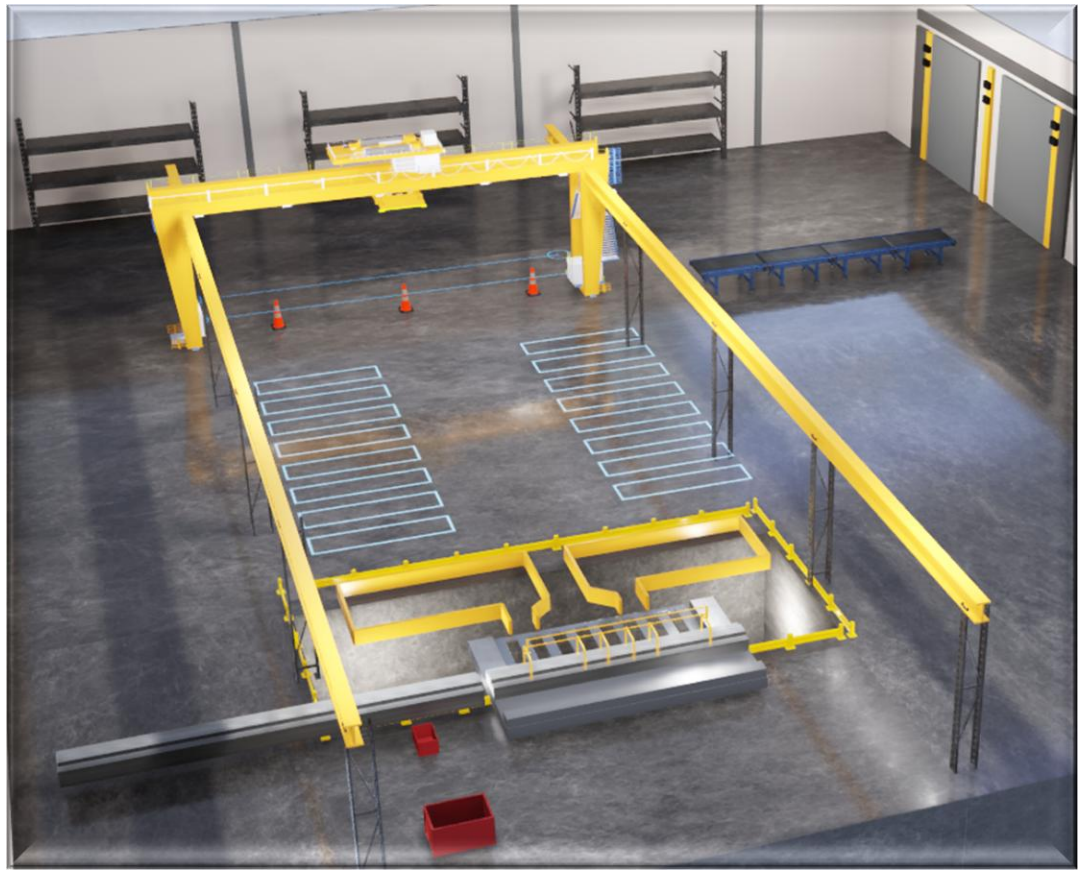
- Analyzed crane KPIs using AnyLogic's material handling library.
- Flexible parameters allowed non-developers to run scenarios.
- Cloud access removed need for software or licenses.
- Integrated with Omniverse for clear executive communication.



PROCESS FLOW

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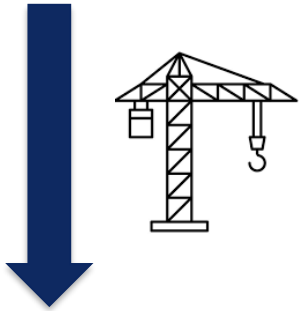
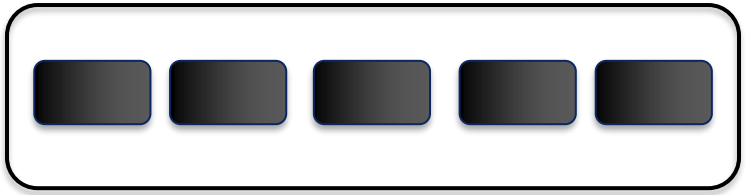
Step 1: Casting

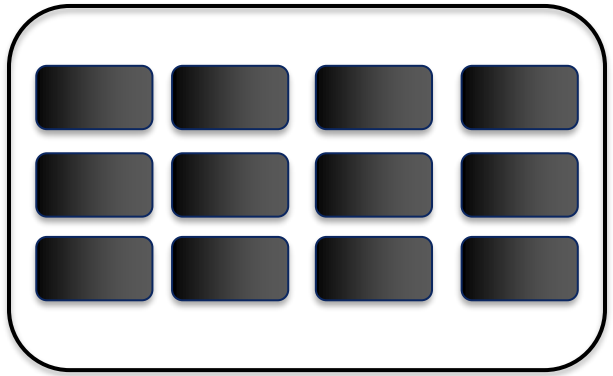
Molds

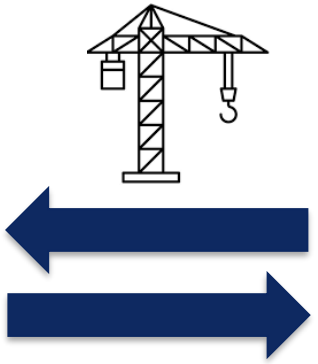


Step 2: Laydown Pit

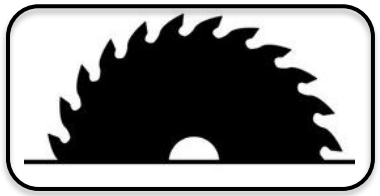


Step 3: Storage Area

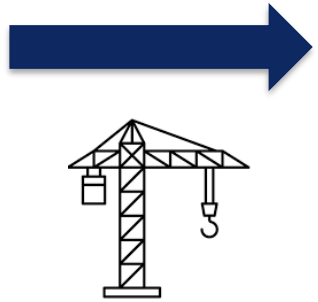


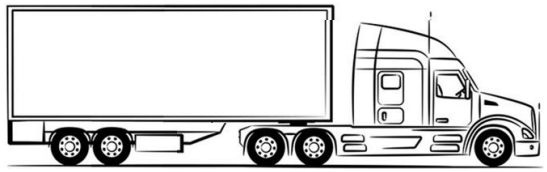


Step 4: Sawing

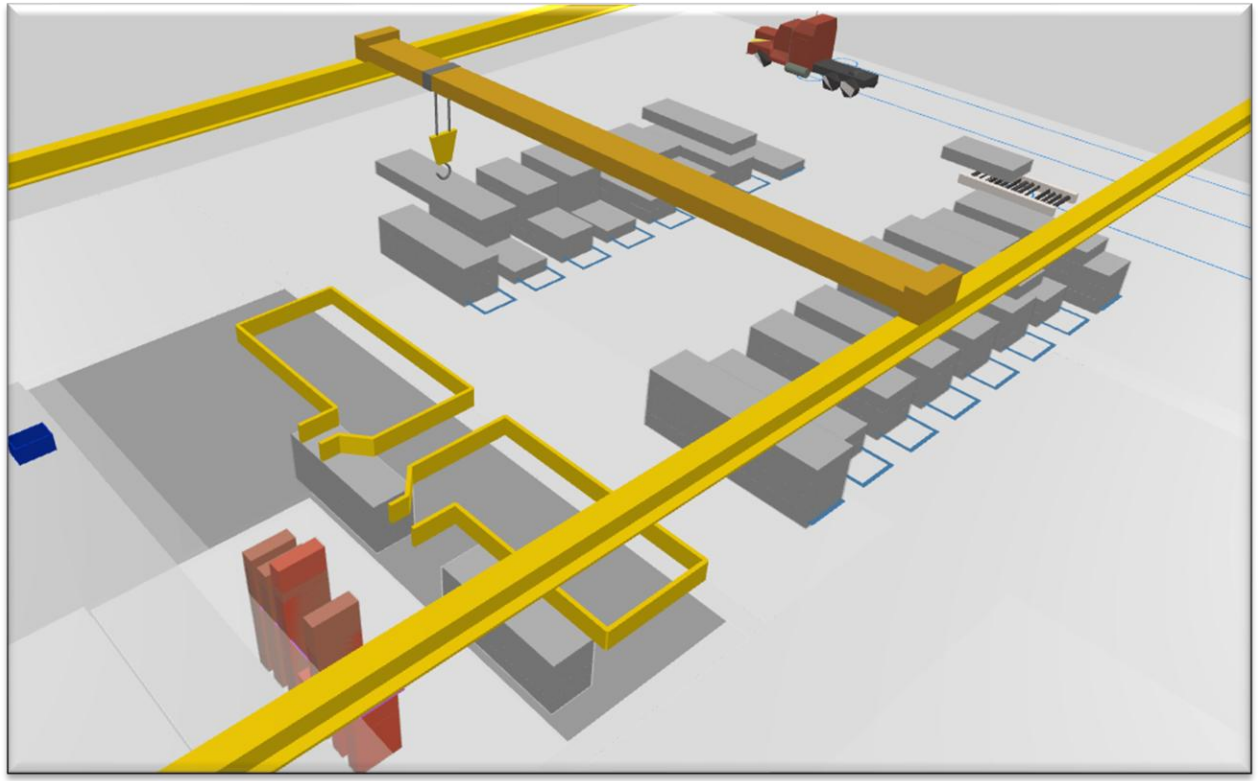


Step 5: Outbound





ANYLOGIC 3D



OMNIVERSE

ANYLOGIC 3D VIEW

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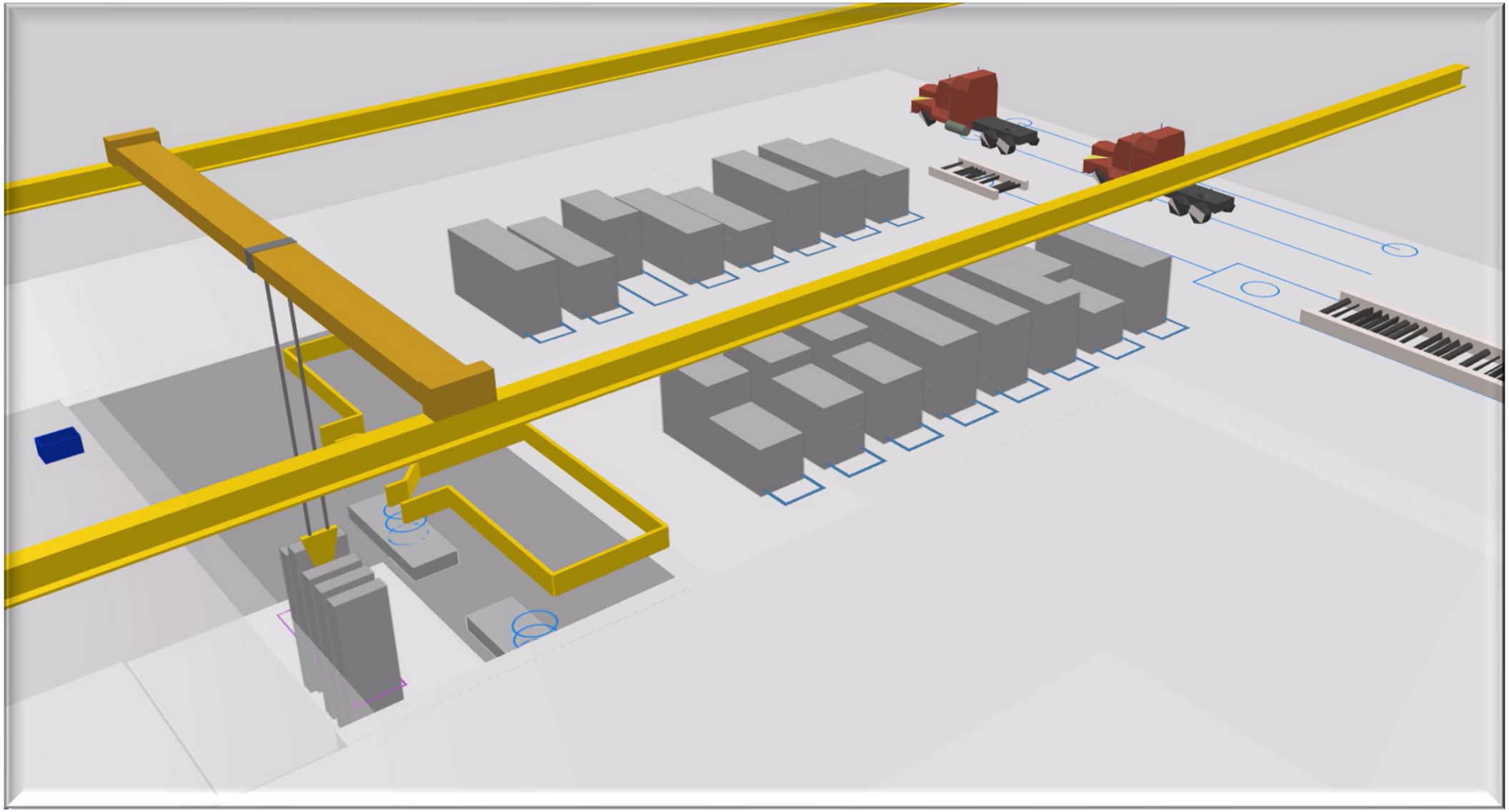

INPUT DATA

parameter	value
Handling Time	10
Maintenance Interval	7
Mean Time Between Failures	exp(1,0.01)
Mean Time To Repair	normal(1,5)
Casting Time	2.2
Production Schedule	schedule1
...	...

OUTPUT DASHBOARD

NOVELIS IMPACT

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- Avoided crane purchase and throughput losses.
- Resolved bottlenecks, boosting efficiency and planning.
- Delivered scalable AnyLogic Cloud tool for evolving needs and decisions.
- Improved collaboration and confidence with clear crane insights.

WHY OMNIVERSE?

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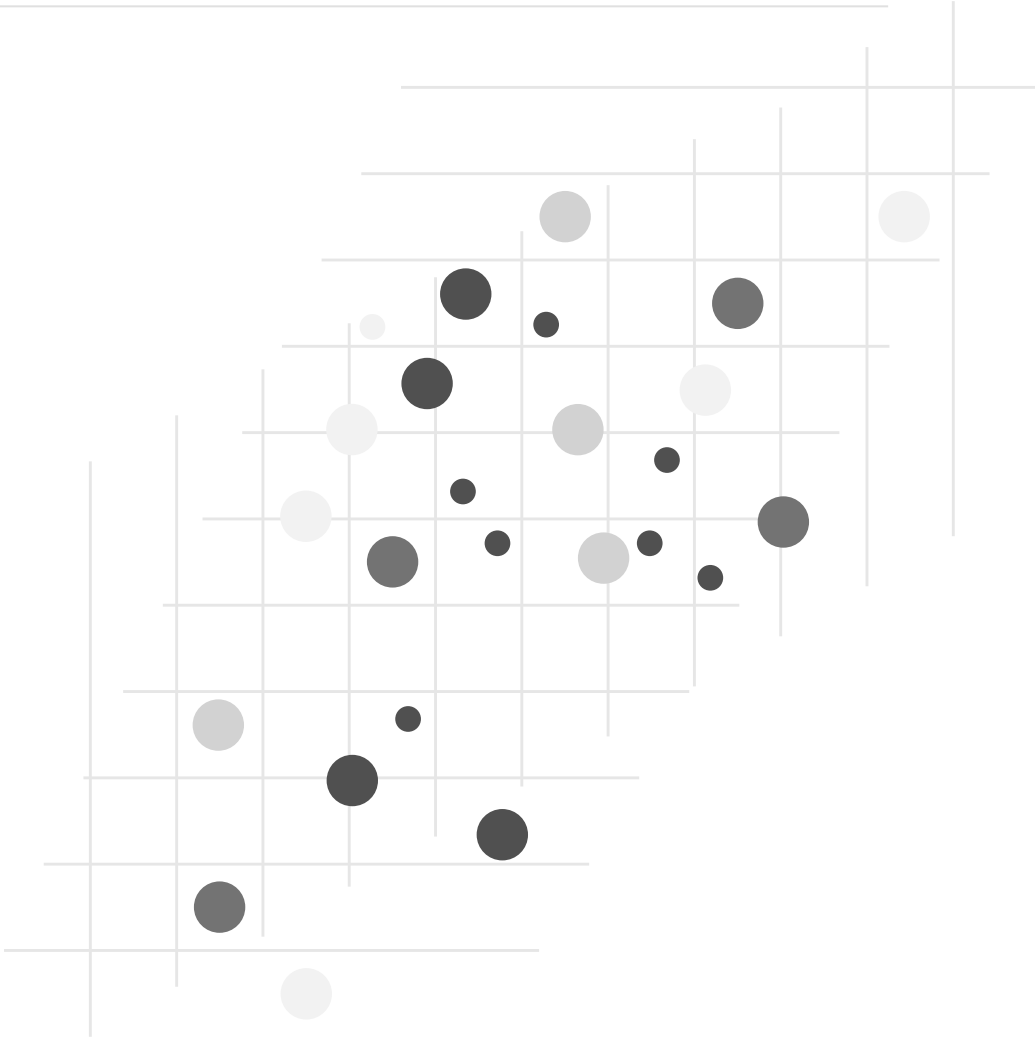
- Lifelike visuals increased simulation clarity and engagement.
- Helped leadership grasp insights and align on decisions.
- Showcased innovation internally and externally.
- Omniverse renders typically gain strong traction across organizations.



RENDER MODEL IN OMNIVERSE

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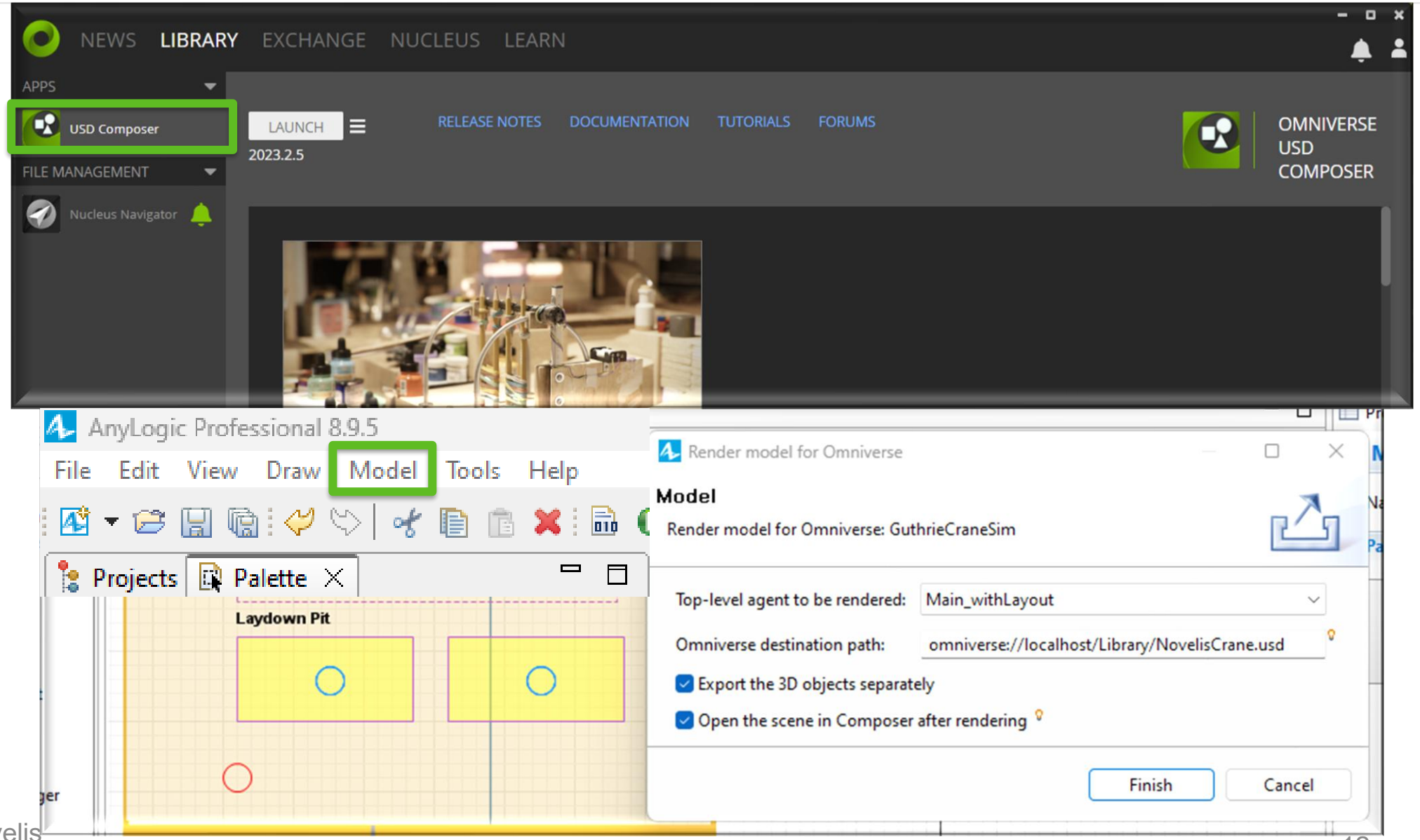

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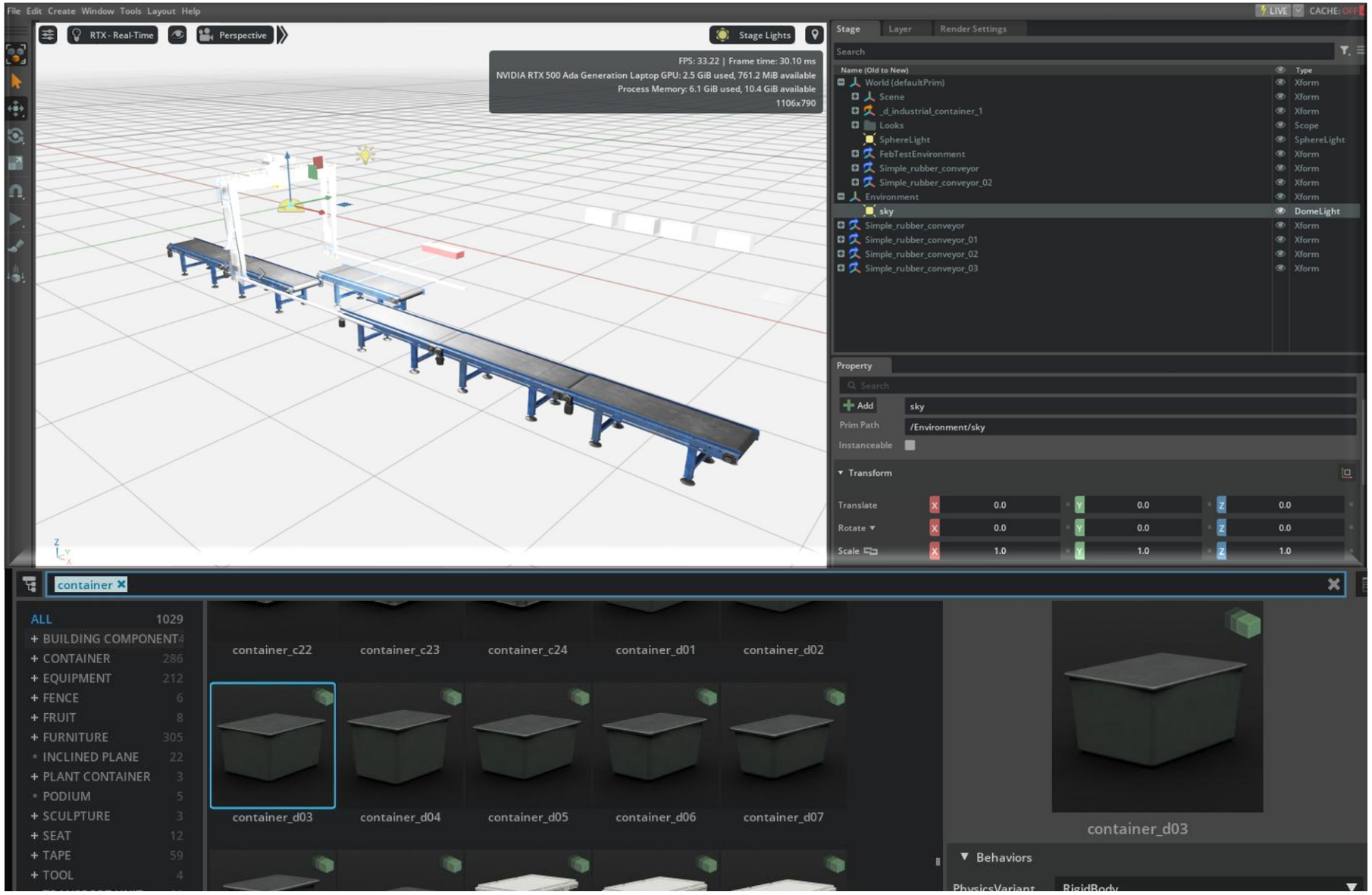

OMNIVERSE CONNECTOR

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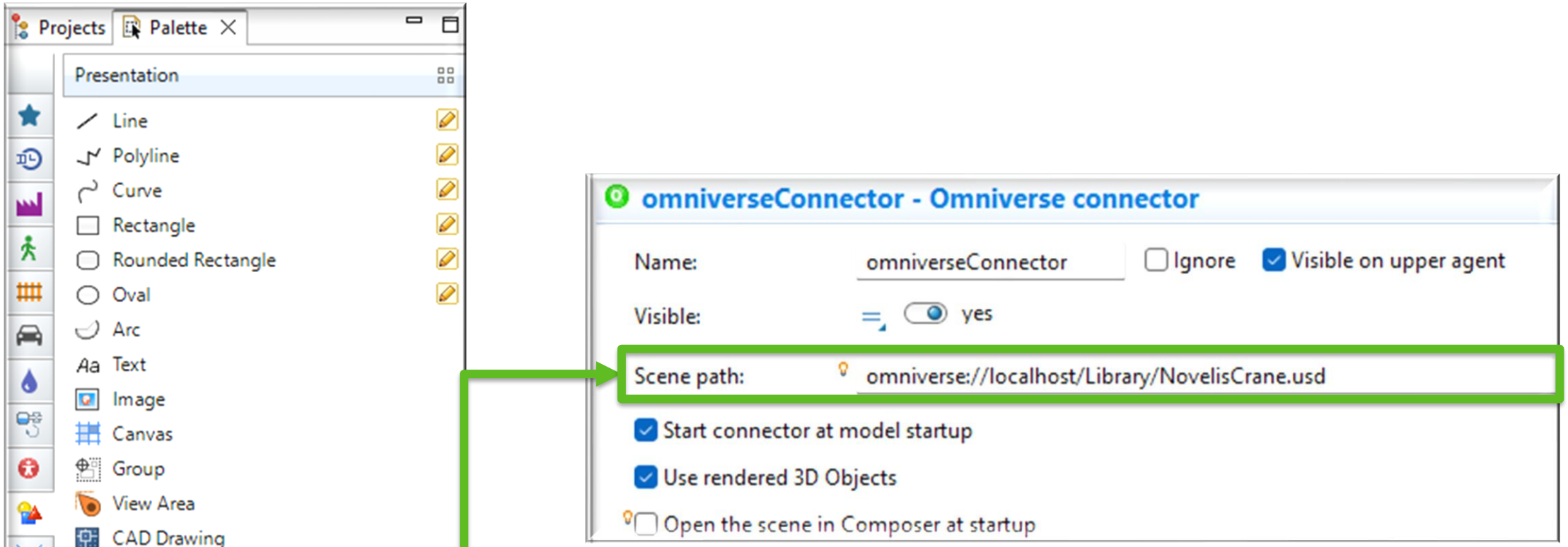

CONNECT OBJECT TO PRIM - LIBRARY

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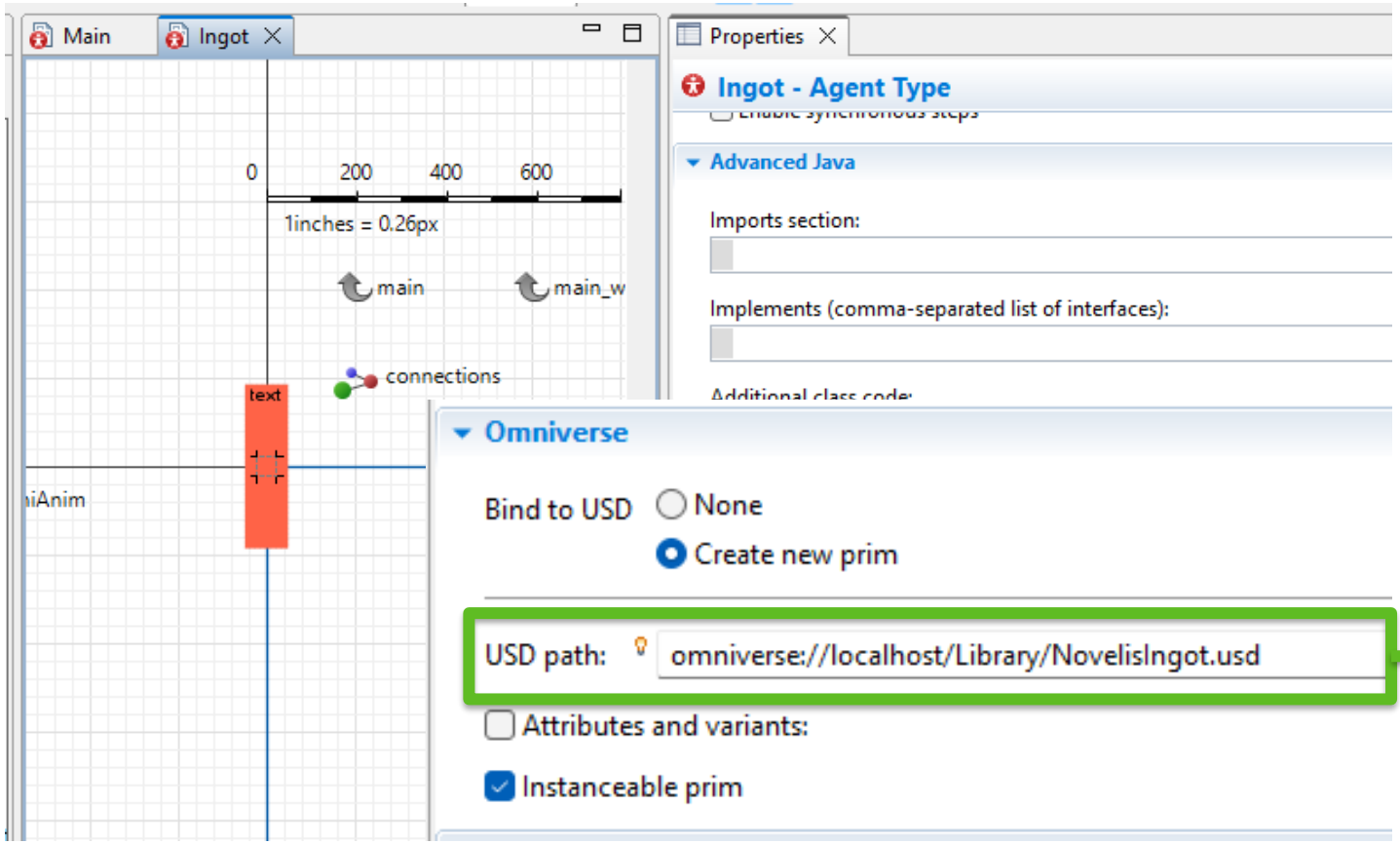

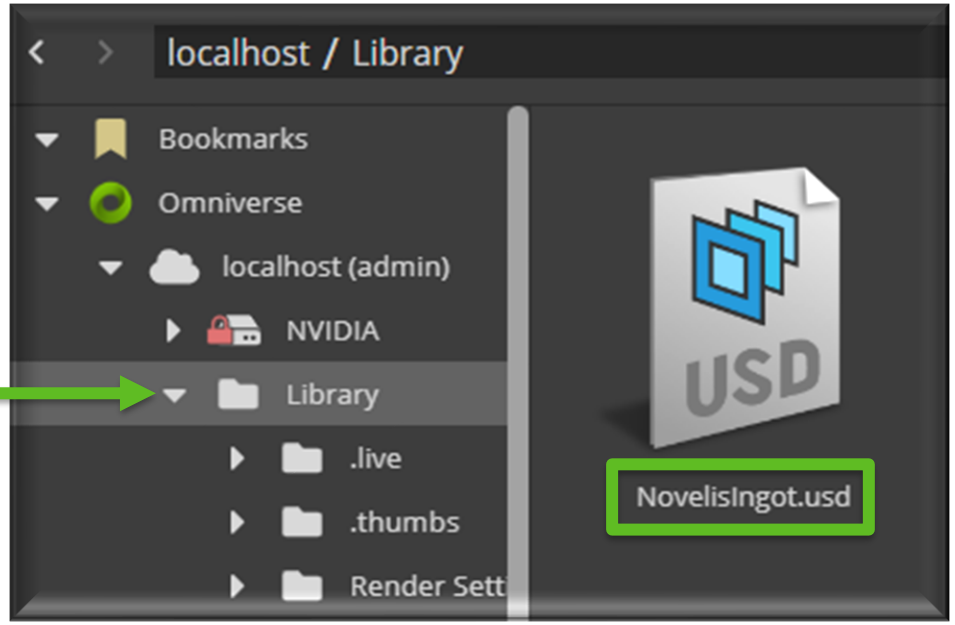

CONNECT OBJECT TO PRIM - SCENE

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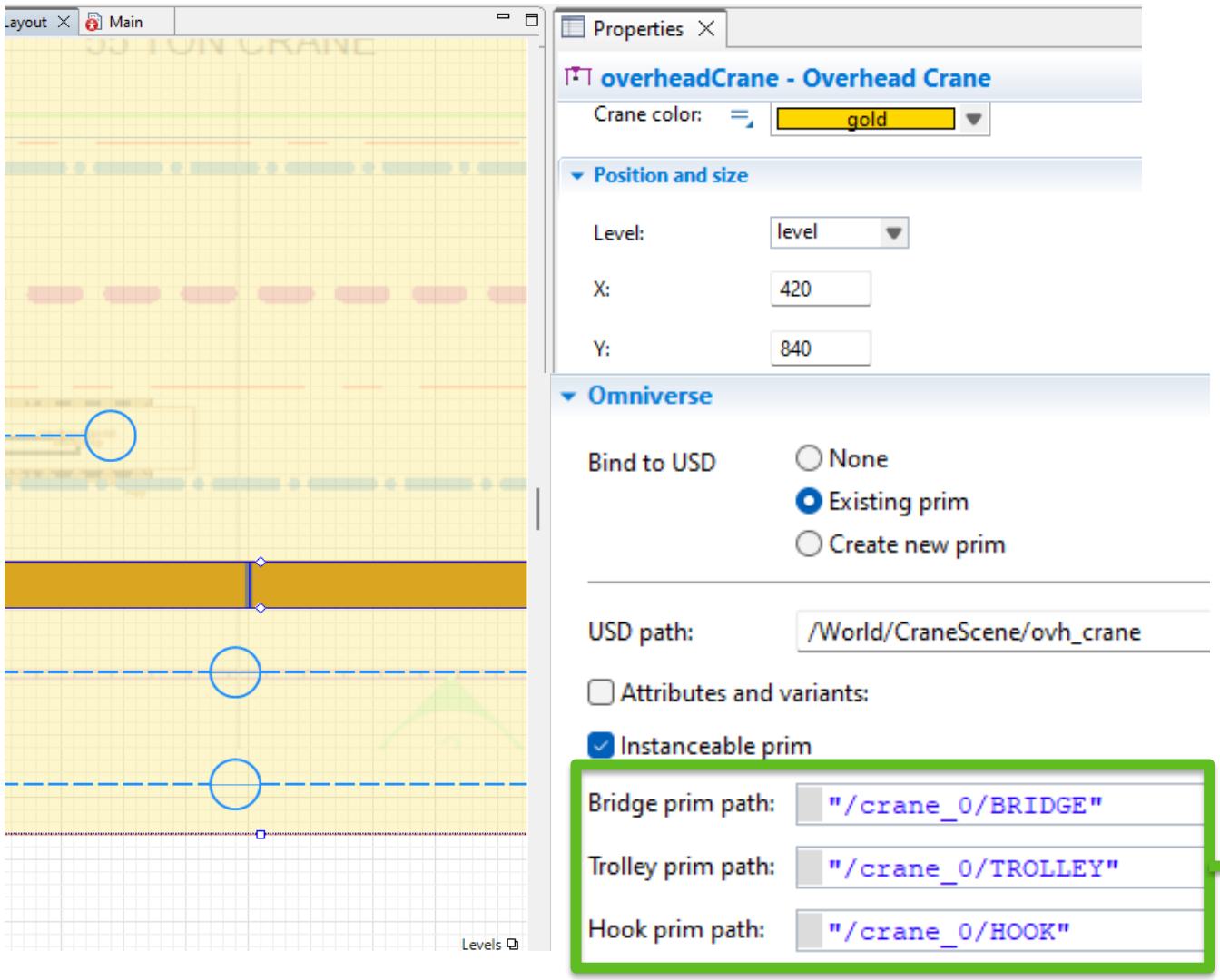

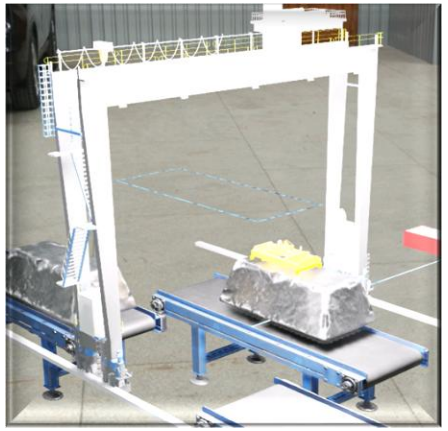

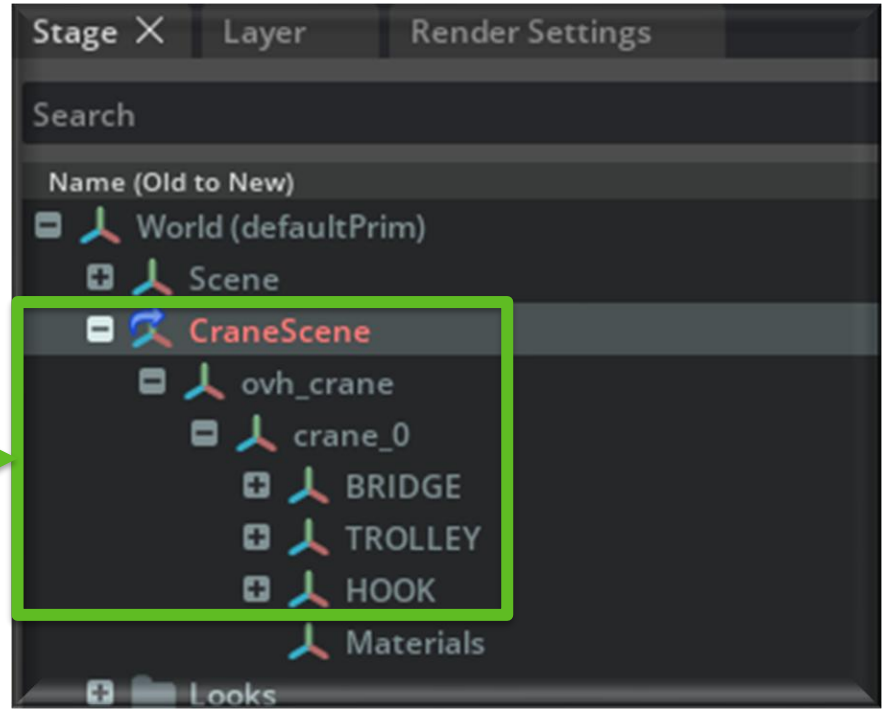

LIVE SESSION

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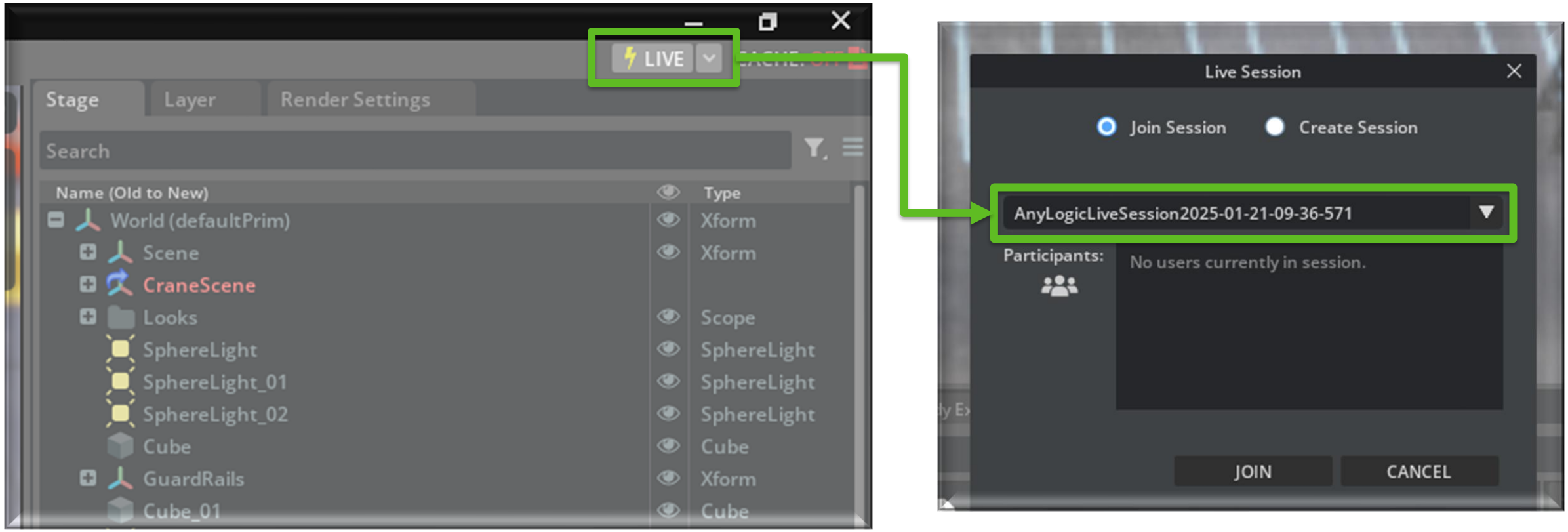

OMNIVERSE RENDER

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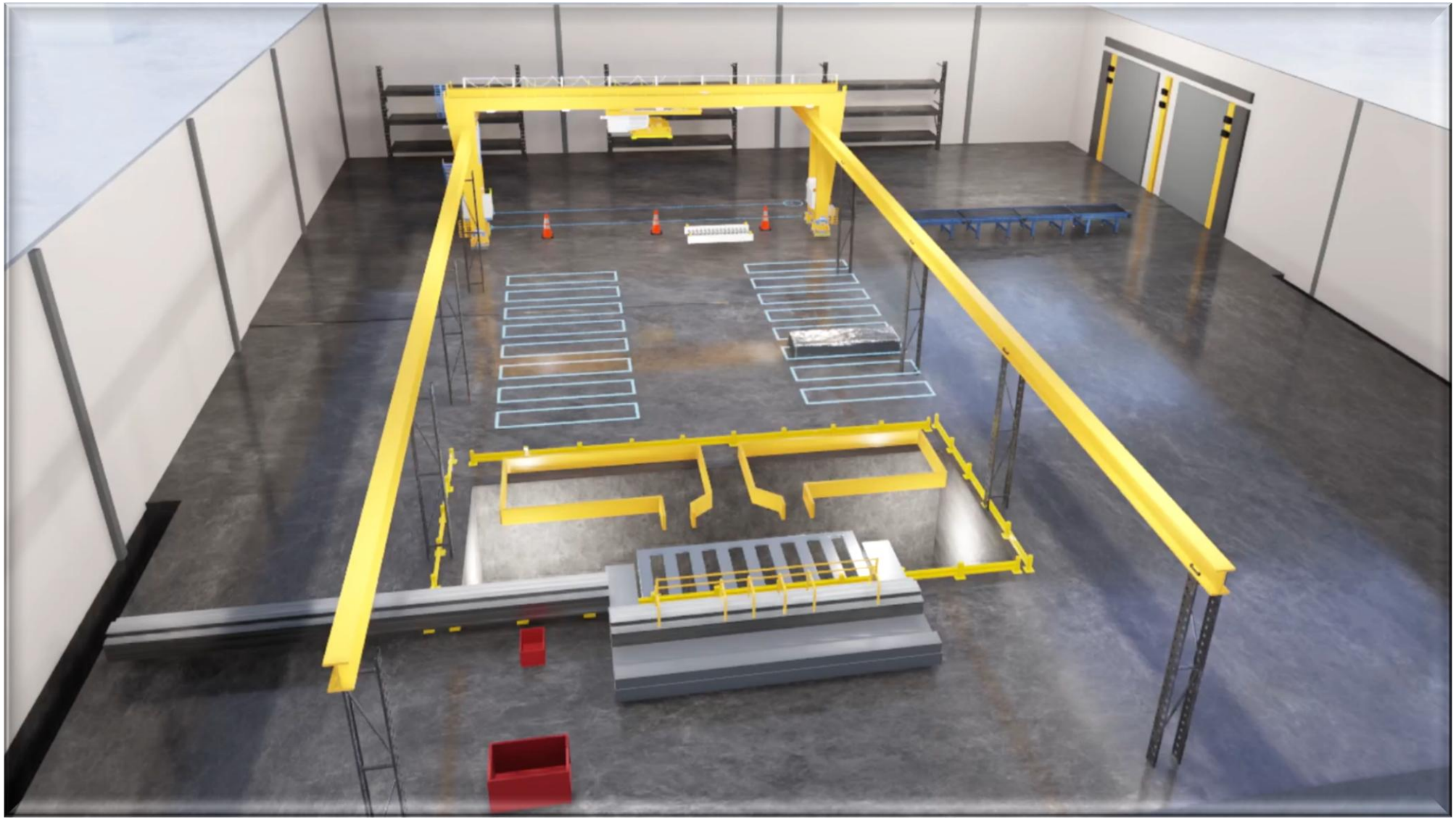

DYNAMIC AGENT VISUAL UPDATE

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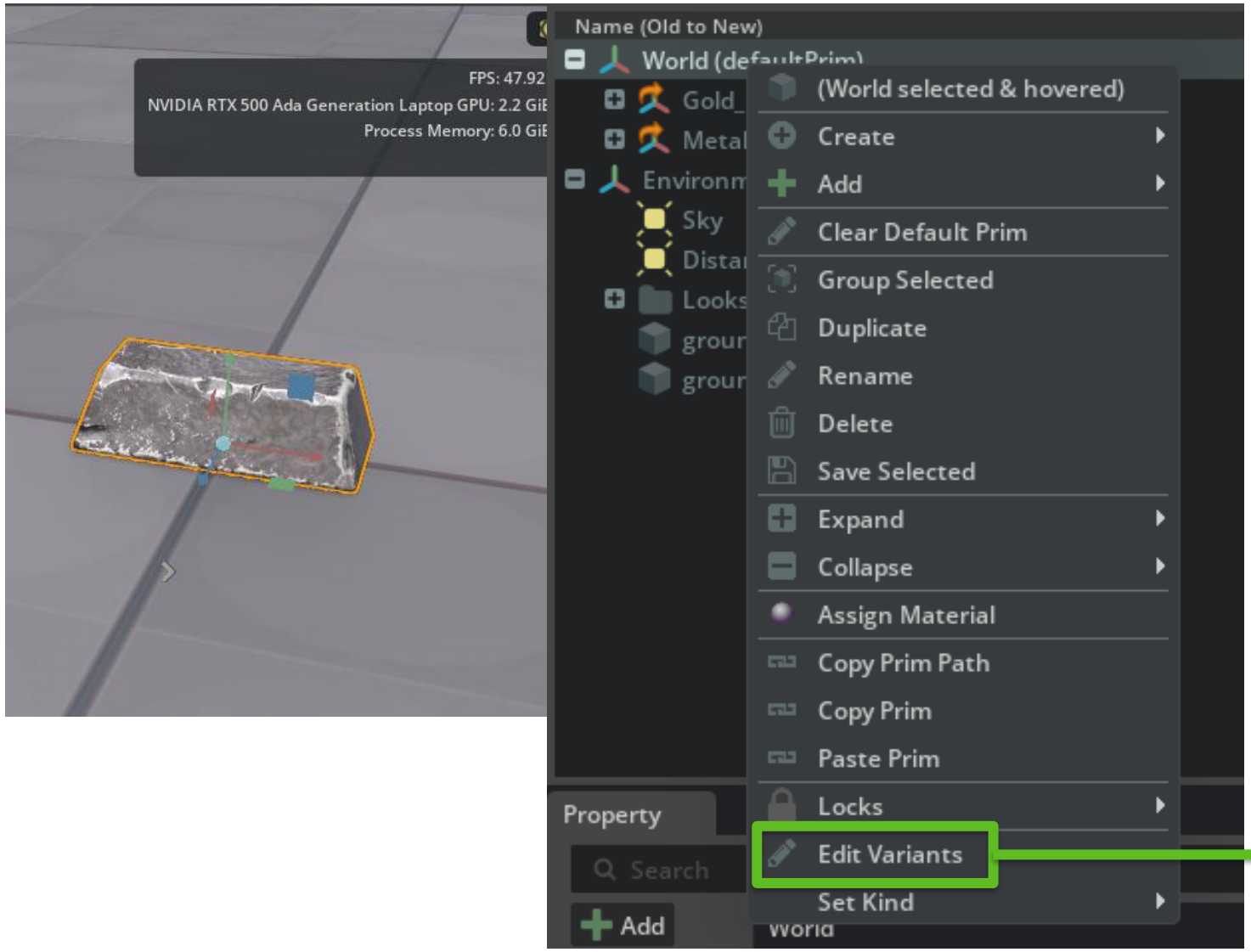

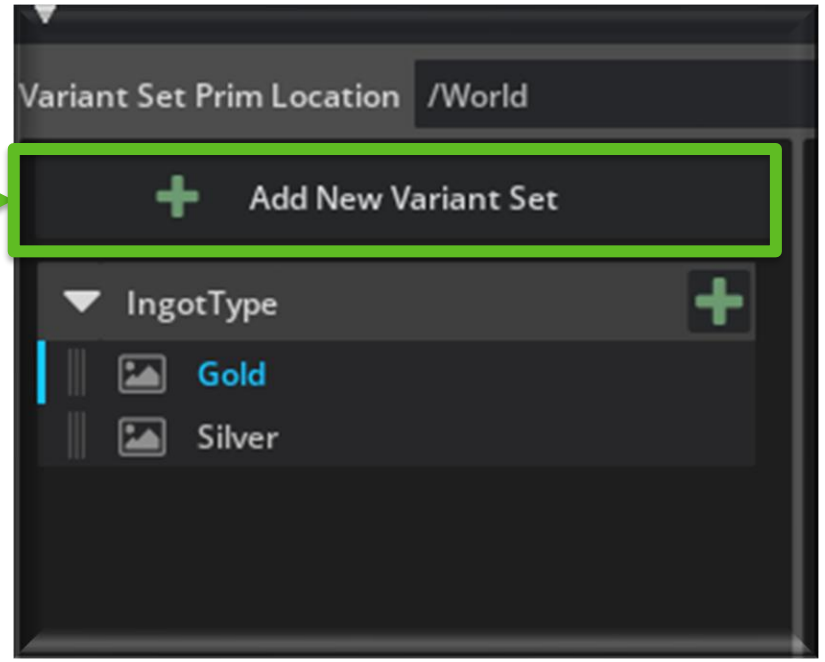

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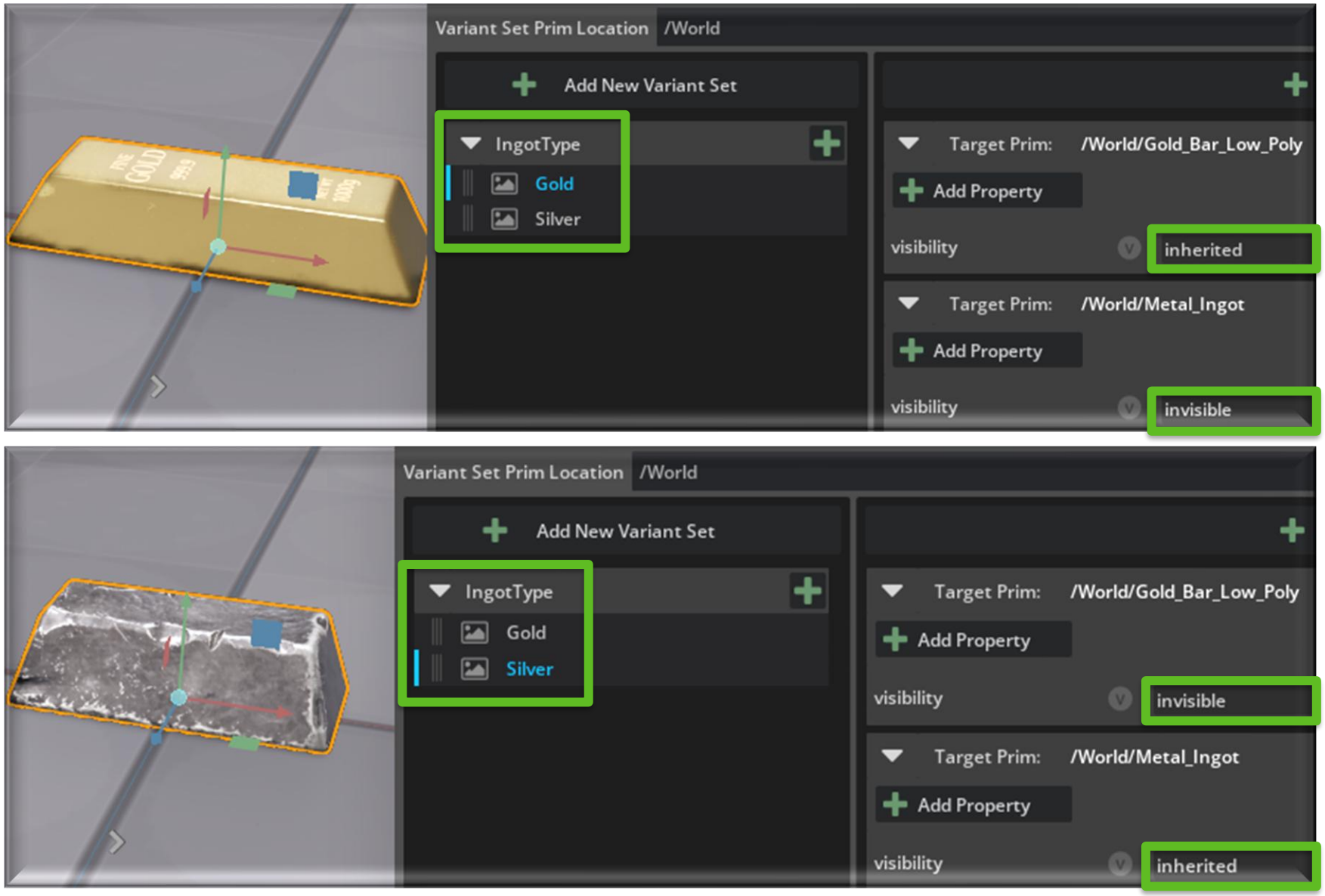

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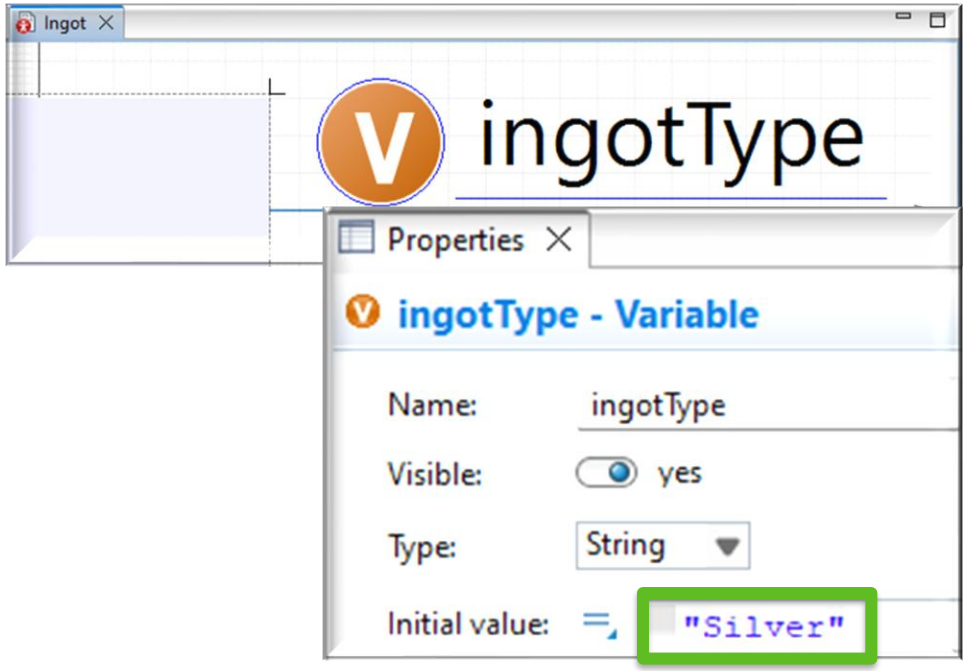

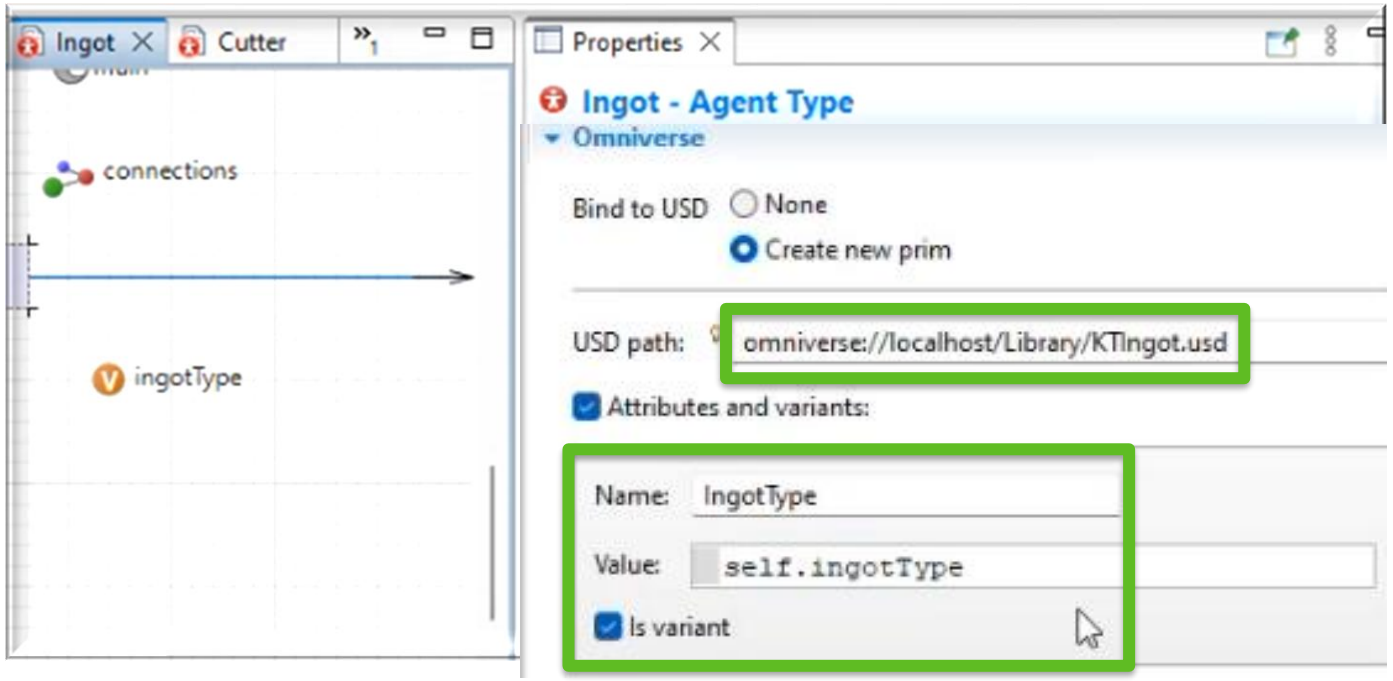

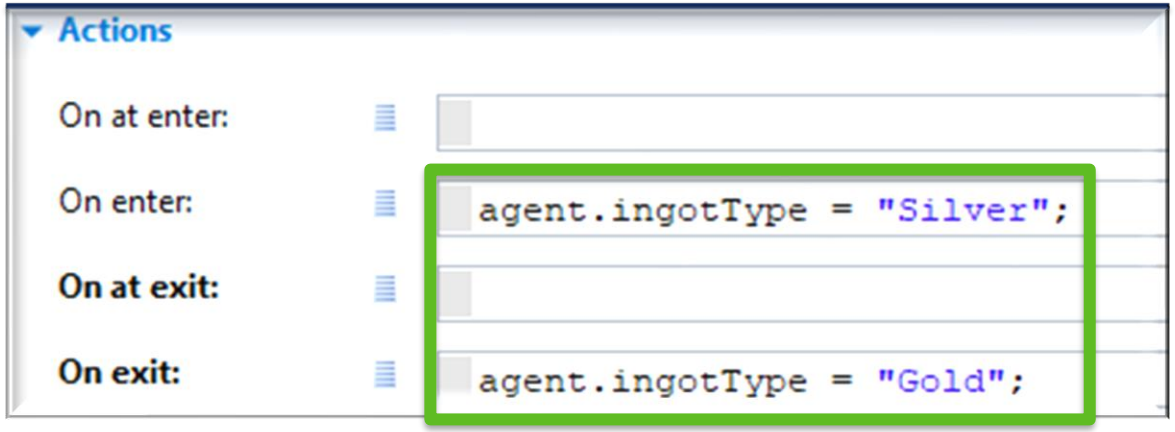

DYNAMIC AGENT VISUAL UPDATE

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SUMMARY

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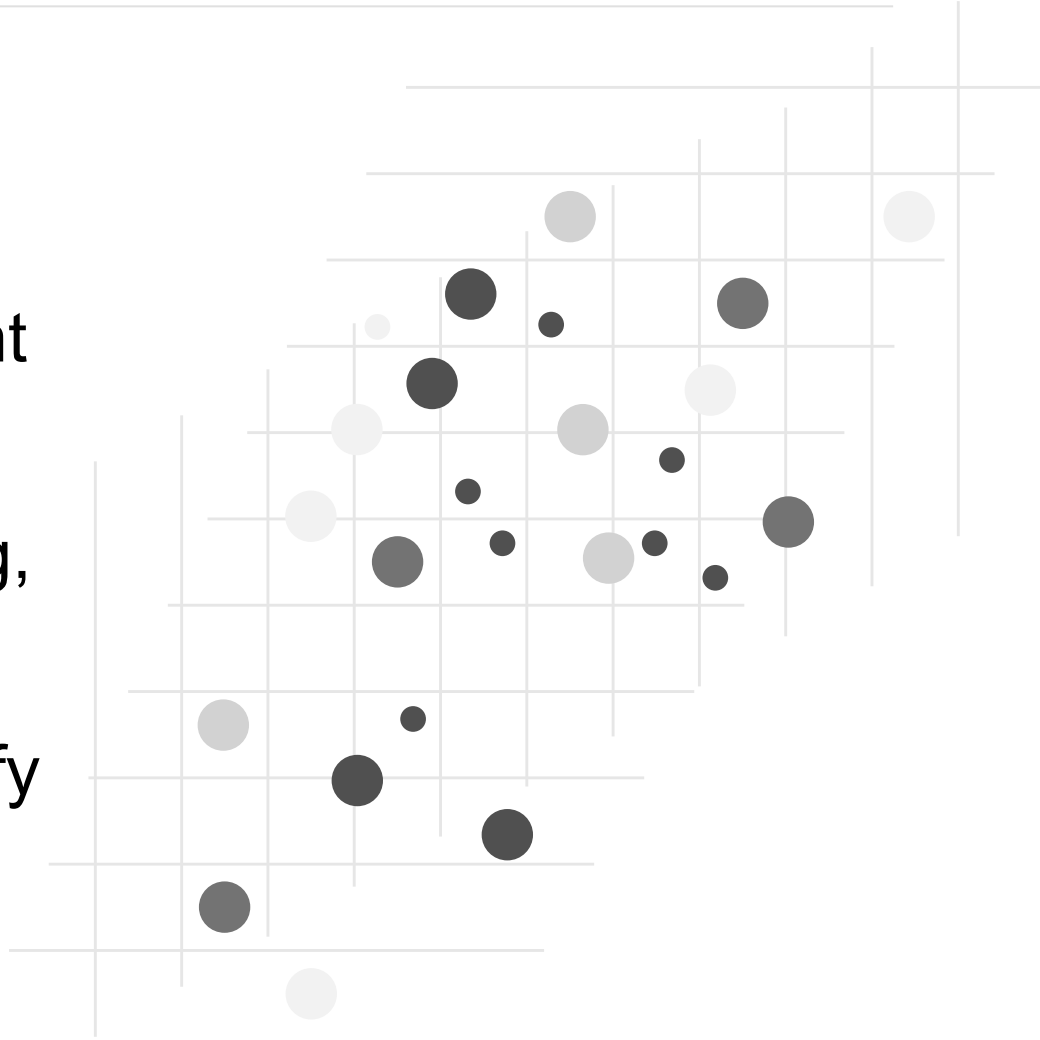
- Omniverse enabled executive-friendly insights through lifelike visuals.
- Simulation showed one crane is sufficient with minor improvements.
- Avoided major spend, improved planning, and delivered scalable tool.
- Next Steps: Expand model scope, identify other bottlenecks, add features.



Q & A

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Questions?