

AnyLogic Cloud.

AnyLogic 9 features & demo

Gregory Monakhov, AnyLogic Cloud Product Owner

Yulia Tropina, AnyLogic 9 Product Owner

Alexander Dumanskiy, Head of AnyLogic 9 & Cloud

Andrei Borshchev, CEO The AnyLogic Company

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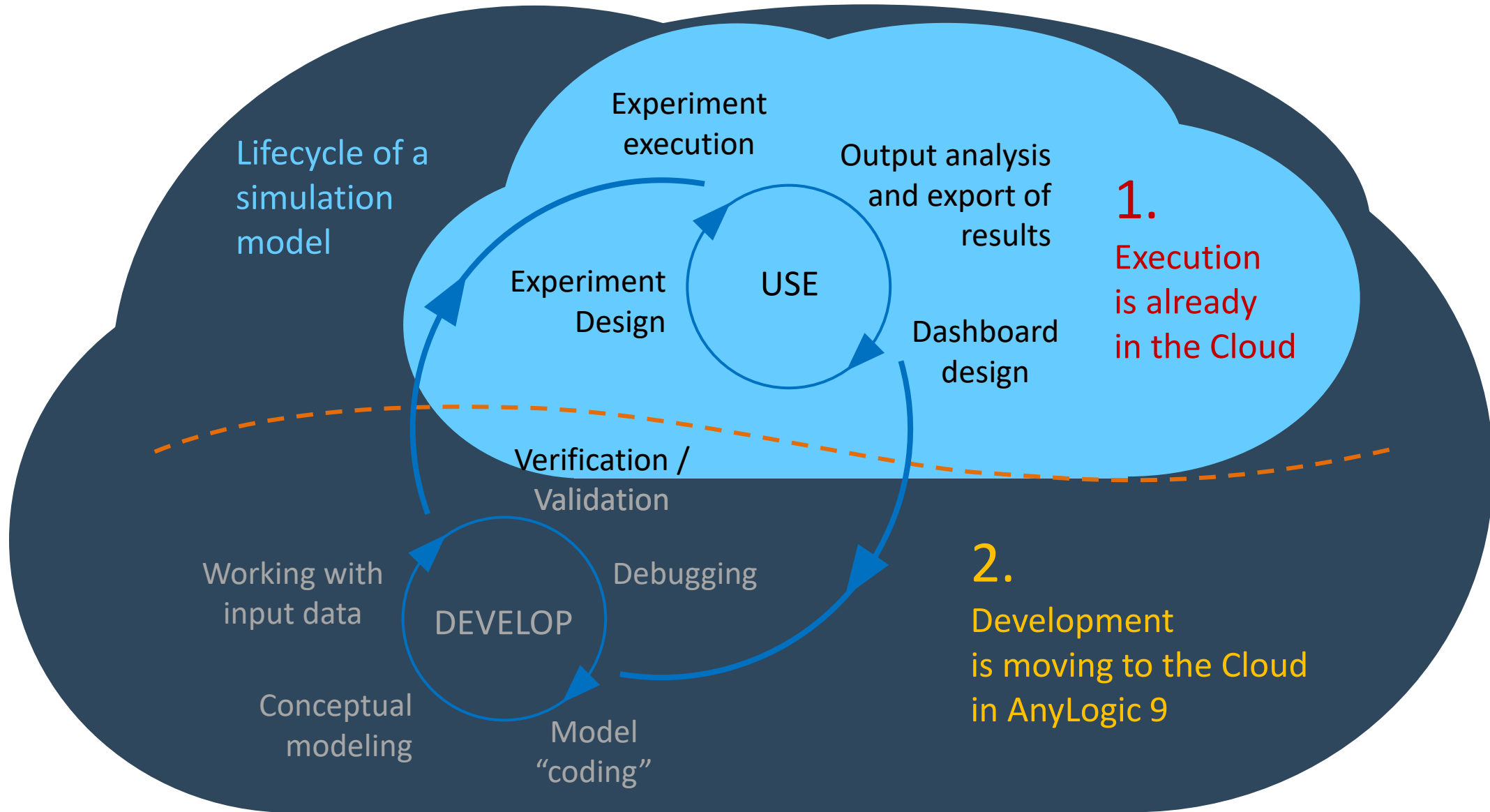
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The entire model lifecycle is in the Cloud



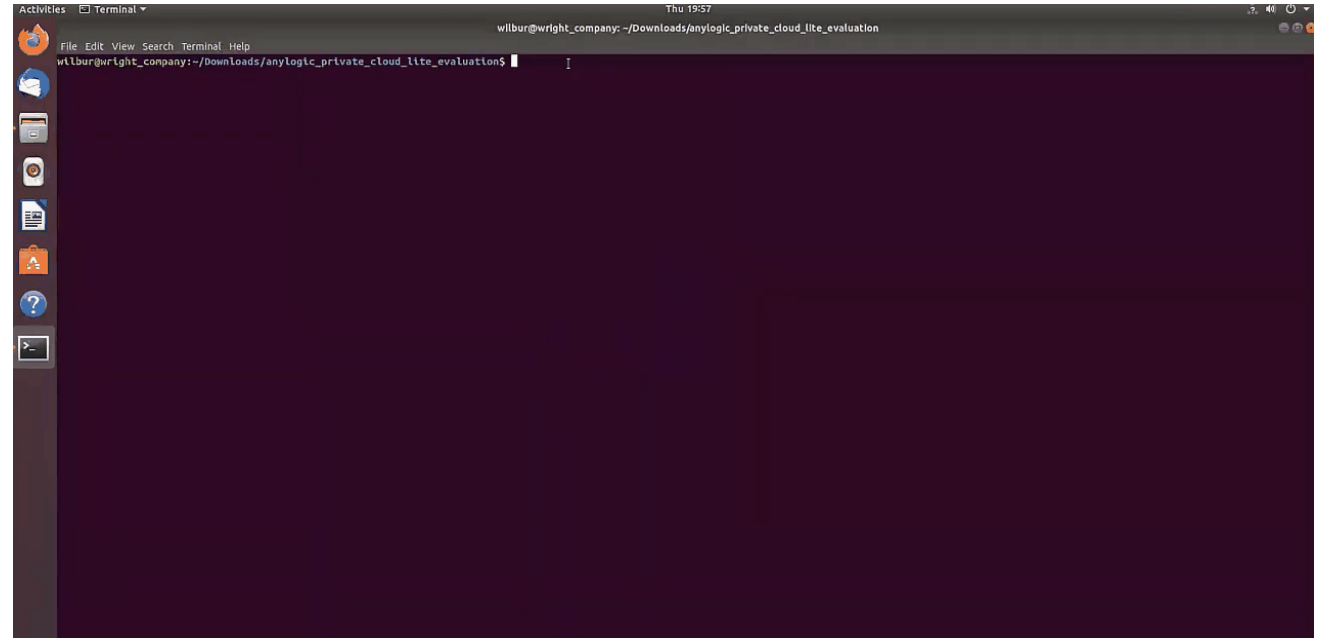
AnyLogic Cloud evolution since ALC'19

Private Cloud installation

- Simple one-click installer for Cloud Lite and Cloud Pro
- Simple Cloud Enterprise installation instructions
- Simple backup-restore and migration

Private Cloud administrator manual

- Installation guide
- Architecture guide
- Configuration guide
- Troubleshooting guide
- Online up-to-date documentation



AnyLogic Cloud evolution since ALC'19

Admin Profile

Gregory

- Profile
- Admin panel
- Get support
- Help

User Management

Users list

Edit Send message Delete

Name
<input type="checkbox"/> Gregory Monakhov
<input type="checkbox"/> Peter Parker
<input checked="" type="checkbox"/> Anthony Stark
<input type="checkbox"/> Steven Rogers

Task Management

Services Running tasks Nodes

Type	Task ID
Animation svg	048d36e7-a6e0-474e-954c-71a818286e99
Animation svg	a0c8c453-1650-4a24-9cac-e88b7ecebe61
Animation svg	6a49f127-8842-44a6-8602-347bf76c11de

Status bar

Cloud info:

Support Expiration Date: 11.05.2025
Evaluation Expiration Date: 05.08.2021
Build Date: 05.07.2021
License server: 10.0.103.143:8443 [Edit](#)

Cloud state:

Registered services: 13
Running tasks: 0

Cloud Health Report:
✓ No errors found

Services management

Services Running tasks Nodes

Restart service Reload image

- balancer
com.anylogic.cloud/balancer:2.2.4
- cassandra
com.anylogic.cloud/cassandra:3.11.6

Custom Branding

Logo images:

Change logomark

Change logotype

Change favicon

Theme base color:

Cloud Sky Indigo Green Dark Custom

App bar Login Loading

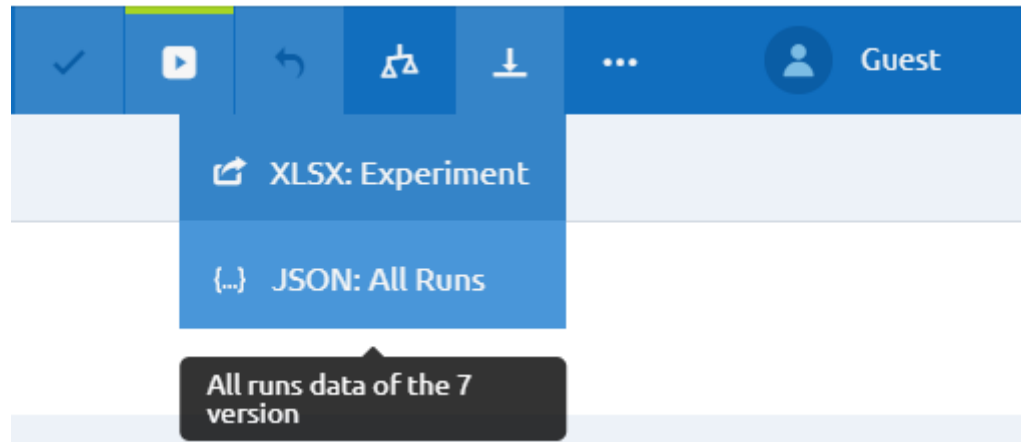
Wright Cloud Public models

AnyLogic Cloud evolution since ALC'19

Native 3rd party libraries in Private Cloud

- Run Python and other languages
- Execute custom algorithms to solve classic analytical tasks, such as Vehicle Routing Problem, Travelling Salesman Problem, etc.

All Runs results in JSON file



Cloud API documentation and examples

1 Overview

In addition to the standard web UI, AnyLogic Cloud offers multiple APIs that you can use to configure and run simulations programmatically within your analytical workflows, query experiment results, build fully customized web interfaces for your models, and do a lot of other things. There are four APIs:

- [RESTful HTTP API](#)
- [JavaScript API](#)
- [Java API](#)
- [Python API](#)

3 API usage examples

3.1 Simulation run without animation (minimalistic)

In this example we run a simulation experiment without animation. First, we find the model and its latest version. Next, we specify the input parameters of the model. If simulation with such inputs has already been completed (and thus, the outputs are stored in Cloud), the outputs are simply transferred to the web frontend. Otherwise, simulation is run in the fast mode without animation. The outputs in this case are generated and delivered to the frontend.

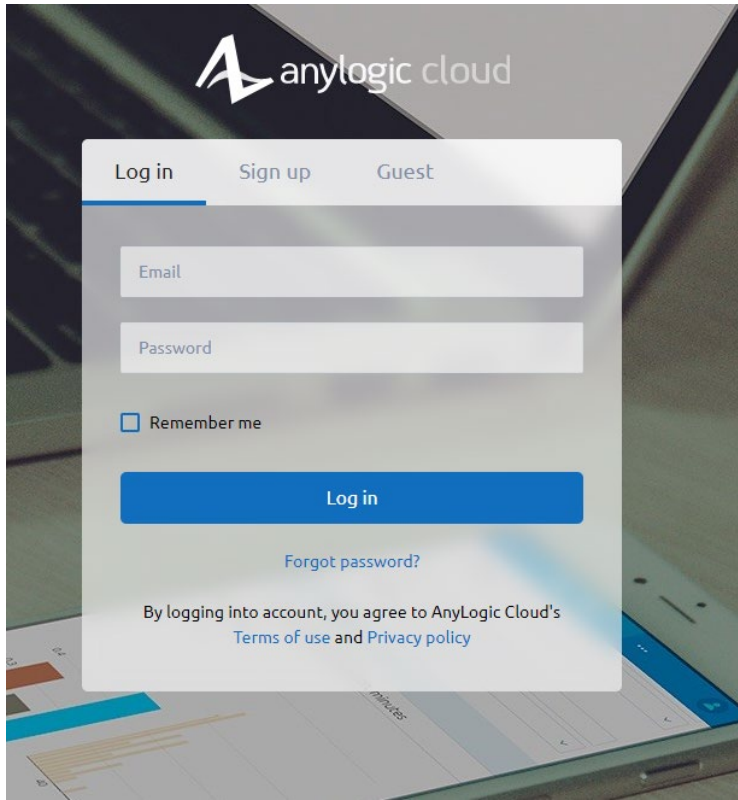
Javascript

This is done with the API function [ModelRun.getOutputsAndRunIfAbsent\(\)](#).

HTML:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>AnyLogic Cloud API Example - Run simulation. Minimalistic</title>
  <script src="https://cloud.anylogic.com/assets/js-client-8.5.0/cloud-client.js"></script>
  <script src="js/main.js"></script>
</head>
<body>
  <button id="run-button" onclick="runSimulation()">Run simulation</button>
  <div id="info">The simulation results will be displayed here</div>
</body>
</html>
```

[coming soon] Internationalization



anylogic cloud	Public models
All Models	7175
Healthcare	489
Manufacturing	283
Transportation and Logistics	399
Supply Chains	220
Artificial Intelligence	8
Market and Competition	103
Airports, Stations, Malls	186

Website localization

- “Speak” with clients in their native language
- Create custom localizations in Private Cloud
- Combine localization with custom branding features

[coming soon] Enterprise Authorization

Enterprise authorization in Private Cloud

- Connect the product to your enterprise user management system
- Authorize Cloud users through the system

Feature highlights

- Lightweight Directory Access Protocol (LDAP)
- Active Directory (AD)
- Private Cloud Pro and Enterprise only

How it works:

Home > Contoso > Users - All users

Users - All users
Contoso - Azure Active Directory

+ New user + New guest user ↑ Bulk create ↑ Bulk invite

Search Name or email Search attributes Name, email (begins with)

	Name	User name	User type
<input type="checkbox"/>	Alain Charon	alain@contoso.com	Member
<input type="checkbox"/>	Charles Anhalt	charlesan@contoso.com	Member
<input type="checkbox"/>	Danielle McKay	danielle@contoso.com	Member
<input type="checkbox"/>	Eggert Schafer	eggert@contoso.com	Member



Cloud Login

Log in

alain@contoso.com

.....

Remember me

Log in

Forgot password?

By logging into account, you agree to AnyLogic Cloud's Terms of use and Privacy policy

Profile Info Autofill

Alain Charon

Change photo

First name: Alain

Last name: Charon

Company: Contoso Ltd

LinkedIn profile url: https://www.linkedin.com/in/user-id/

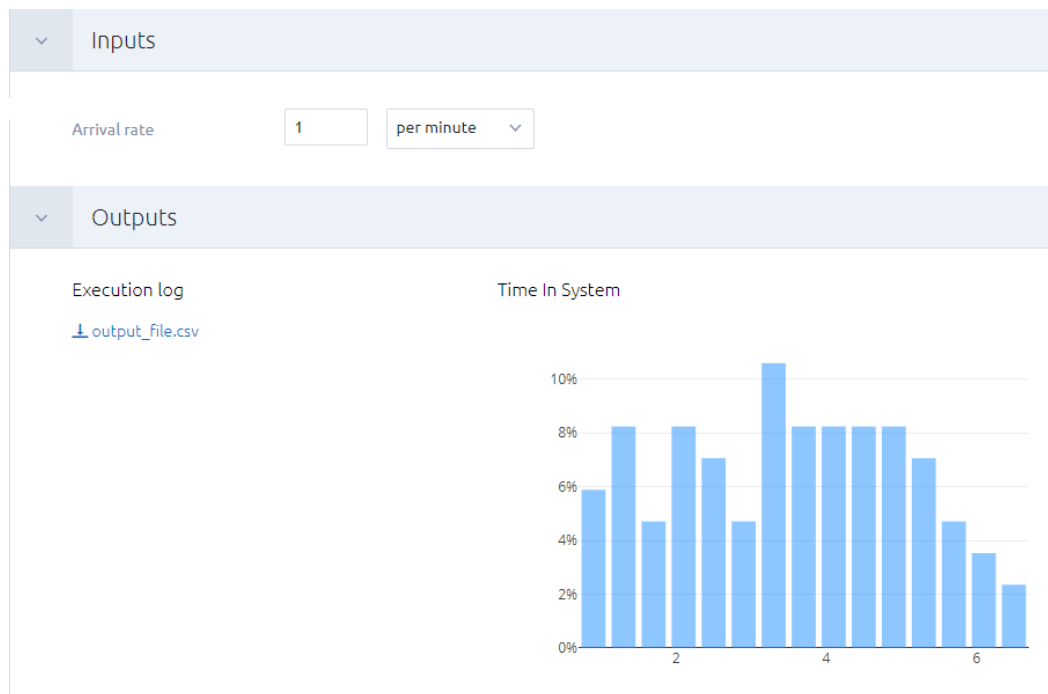
Personal page url: https://www.contoso.com

About: CEO

[coming soon] File As Output (as experiment result)

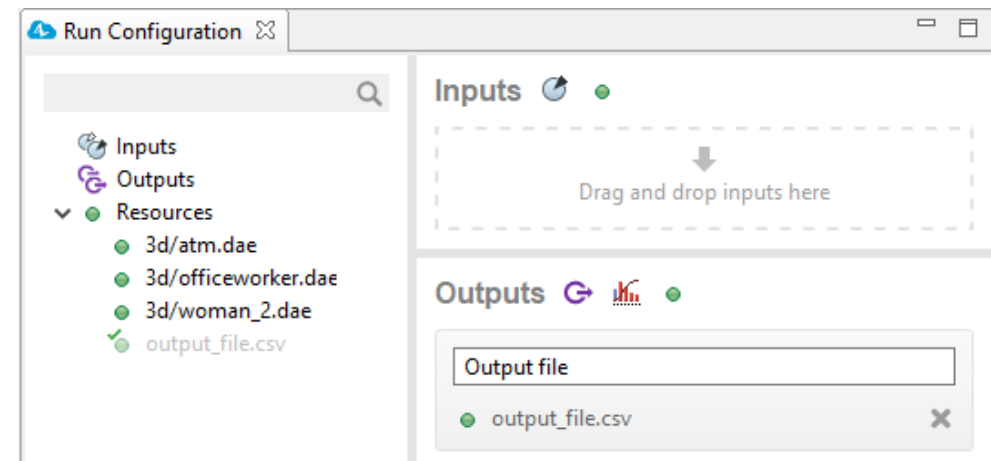
Download files created during model run

- Create custom Excel reports
- Collect execution logs in CSV file
- Generate JSON files for visualization in PowerBI / Tableau

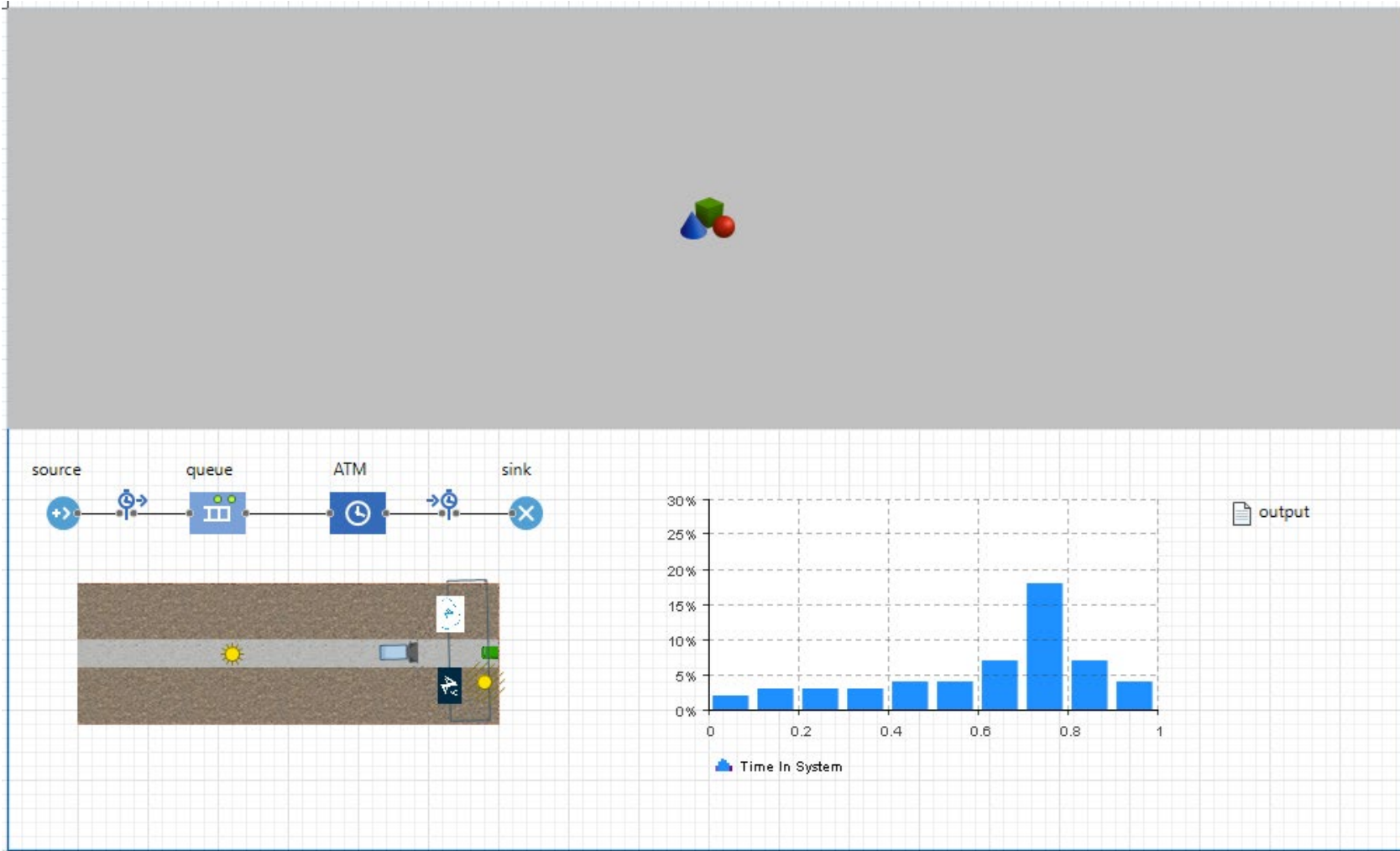


Feature highlights

- Defined through Run Configuration (similarly to other outputs and inputs)
- Any file type is supported (including ZIP)
- The same file can be specified as Input and Output at the same time
- Phase 1: single-run experiment only



File As Experiment Result Demo

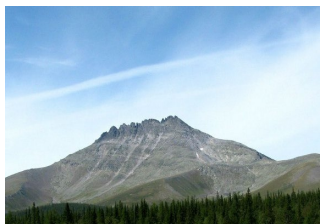


AnyLogic Cloud product family overview



Free SaaS

Run experiments in Cloud
Store and share model results
Great for teaching and learning
Students, teachers and researchers



SaaS
Subscription

+ Private model space and access to Cloud API
Unlimited model execution time
Researchers, consultants and users with heavy multi-run experiments



Private Lite

+ On-premises environment with up to 16 execution cores
Custom branding
Third-party native libraries
Consultants and companies with a small number of model users



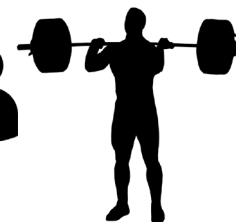
Private Pro

+ Up to 64 execution cores
Enterprise authorization protocols
Consultants and companies with a medium number of model users and heavy-multirun experiments



Private
Enterprise

+ Unlimited number of execution cores
Consultants and companies with many model users and heavy-multirun experiments



AnyLogic Cloud in 2022

All Runs view

- Table with all runs as part of Cloud GUI
- Sort / Filter / Search for results
- Scenario management

Cloud API for working with files

- Upload / download experiment input / output files through Cloud API

Experiments

- File as output in multirun experiments

User groups for model access management

- Grant access to group of users based on user's position, department, company, etc.

Private Cloud administration

- API for Private Cloud nodes management
- GUI for editing the product settings, such as the Cloud address, available schemes of authorization and registration, SMTP server address, etc.
- Editable model categories

... and further integration with AnyLogic 9

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AnyLogic 9 vision



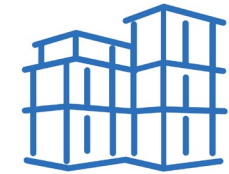
- State-of-the-art web-based model development environment
- Clean minimalistic design and reimagined UX
- High performance
 - Very large number of objects on editor canvas
- Deep integration with AnyLogic Cloud
- SaaS, private server and desktop installation options
- New cool features related to:
 - Teamwork support
 - Python and Java as scripting languages
 - Instant 3D scene preview
 - GIS enhancements
 - BIM support



GIS



Teamwork

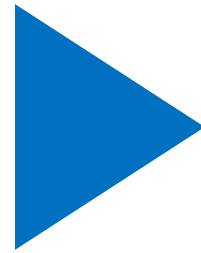


BIM







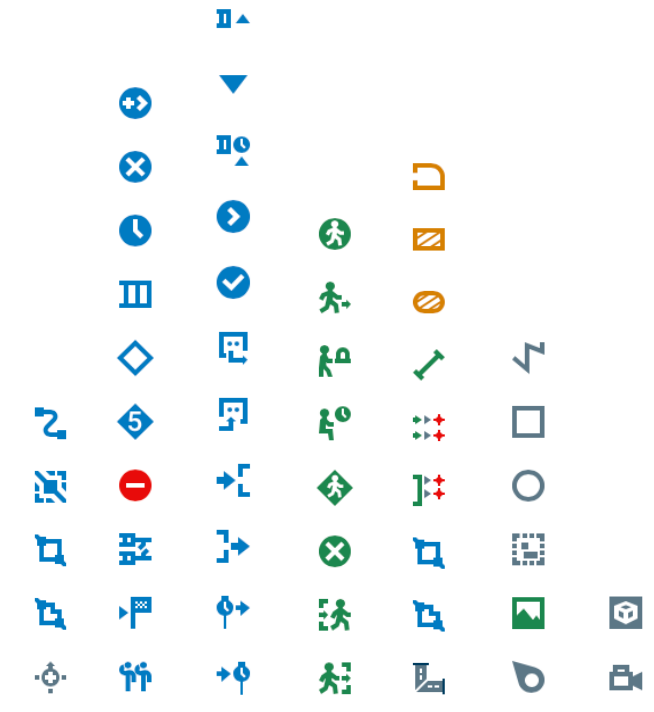


AnyLogic 9 Technology Preview demo



AnyLogic 9 Technology Preview limitations

- Pedestrian and Process Modeling Libraries
 - Blocks
 - Markup elements
 - Presentation shapes
- “Simulation with animation” experiment
 - Plus, experiments available in the AnyLogic Cloud
- You cannot open models created in AnyLogic 8 and vice versa
- AnyLogic Public Cloud only
- Browsers supported:    



Thanks to SaaS architecture all features and bugfixes will be delivered to the users immediately once they are ready

AnyLogic 9 Technology Preview access



Already available as SaaS for AnyLogic Public Cloud subscribers for free*!

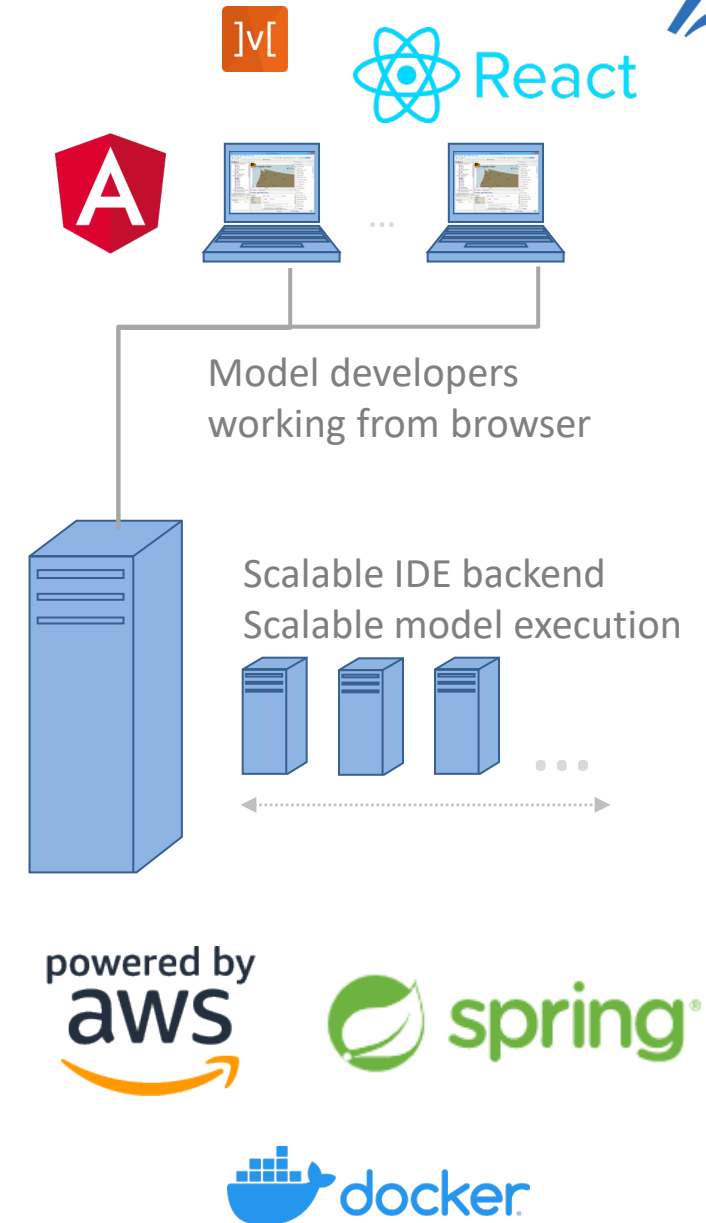


*Until 2022/09

AnyLogic 9 implementation details



- Front-end
 - Single-page application based on micro-frontend concept
 - Modern technologies, including Angular, React and MobX
 - Web-sockets for front-end and back-end interaction
- Back-end
 - Distributed system with Spring Cloud as the backbone for
 - Distributed configuration
 - Service discovery
 - Routing and load balancing
 - On-demand horizontal resource scaling through AWS EC2 API
 - Support for multitenancy with access control
 - IDE functionality implemented using scalable Language Server
- Integration with AnyLogic Cloud for model storage and experiment execution



AnyLogic 9 roadmap



This will happen when AnyLogic 9 fully catches up with AnyLogic 8 in functionality and is available as cloud, server, and desktop installation

AnyLogic 9

9.0 Technology Preview

Sept 2021 ALC

- Pedestrian and Process Modeling libs
- New look & feel
- SaaS only

9.0 SaaS & Server Release

Sept 2022 ALC

- Most part of AL8 functionality
- UX and performance improvement
- Export as a standalone application
- Backward and forward compatibility with AnyLogic 8
- SaaS and Private Server installation options

- Teamwork support
- Python and Java as scripting languages
- Instant 3D scene preview
- GIS enhancements
- BIM support
- Desktop version

AnyLogic 8

8.7.6

[released]

Thank you!
– Questions?