



AVEVAWORLD

ACCELERATE INDUSTRIAL INTELLIGENCE

AVEVA WORLD MILAN, MAY 2026

AVEVA Unified Engineering 4.0 deep dive

And roadmap update

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AVEVA

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AVEVA WORLD MILAN, MAY 2026

Agenda

AVEVA Unified Engineering 4.0
deep dive

Allianz MiCo
Milano

Reminder of what AVEVA Unified Engineering brings

What's new in UE4.0/UE4.1

- Engineering & Schematics
- 3D Design
- Interoperability
- AVEVA Industrial AI in Engineering

High-level features and capabilities

Data-centric, multidiscipline, global engineering and design solution

AVEVA Unified Engineering

3D capabilities

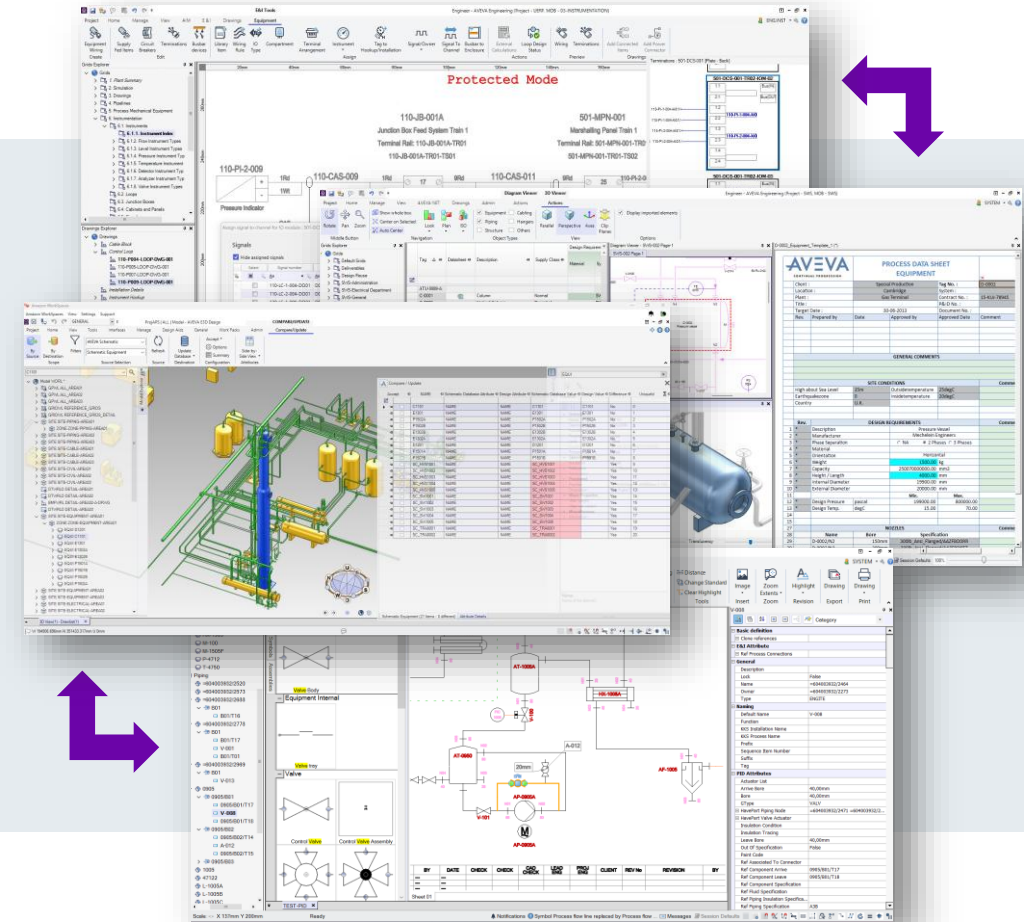
- Multidiscipline 3D modelling
- Piping
- Equipment
- Structures
- HVAC
- Cable routing
- Supports
- Mining

2D capabilities

- PFD / P&ID
- Instrumentation
- Electrical
- Piping isometrics
- Layout / arrangement drawings

1D capabilities

- Engineering data model
- Process and mechanical datasheets
- Electrical and instrumentation datasheets
- Engineering lists (line list, valve list, cable schedule, etc.)

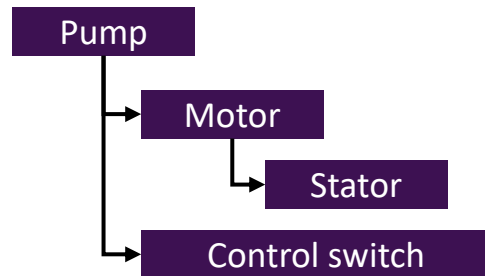


Seamless digital thread

Disciplines collaborate on the same data

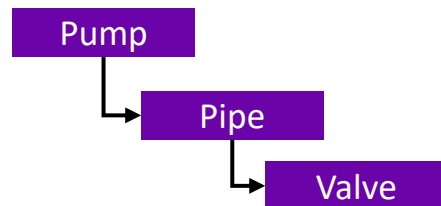
Electrical discipline

- Electrical engineers
- Management of power distribution and electrical aspects e.g. SLD etc.

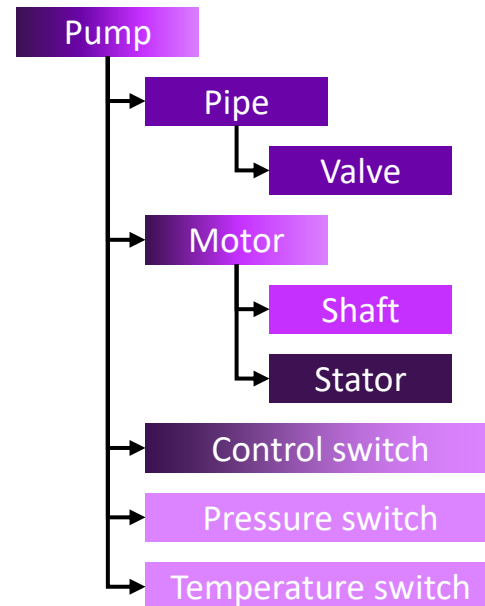


Process discipline

- Process engineers
- Management of the process for the assets e.g. PFD & P&ID etc.

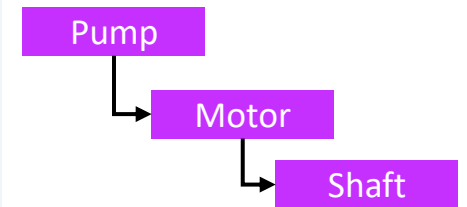


Asset aspects



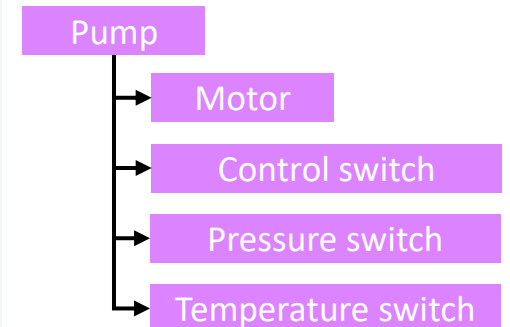
Mechanical discipline

- Mechanical engineers
- Management of the assembly of the assets e.g. API datasheets etc.



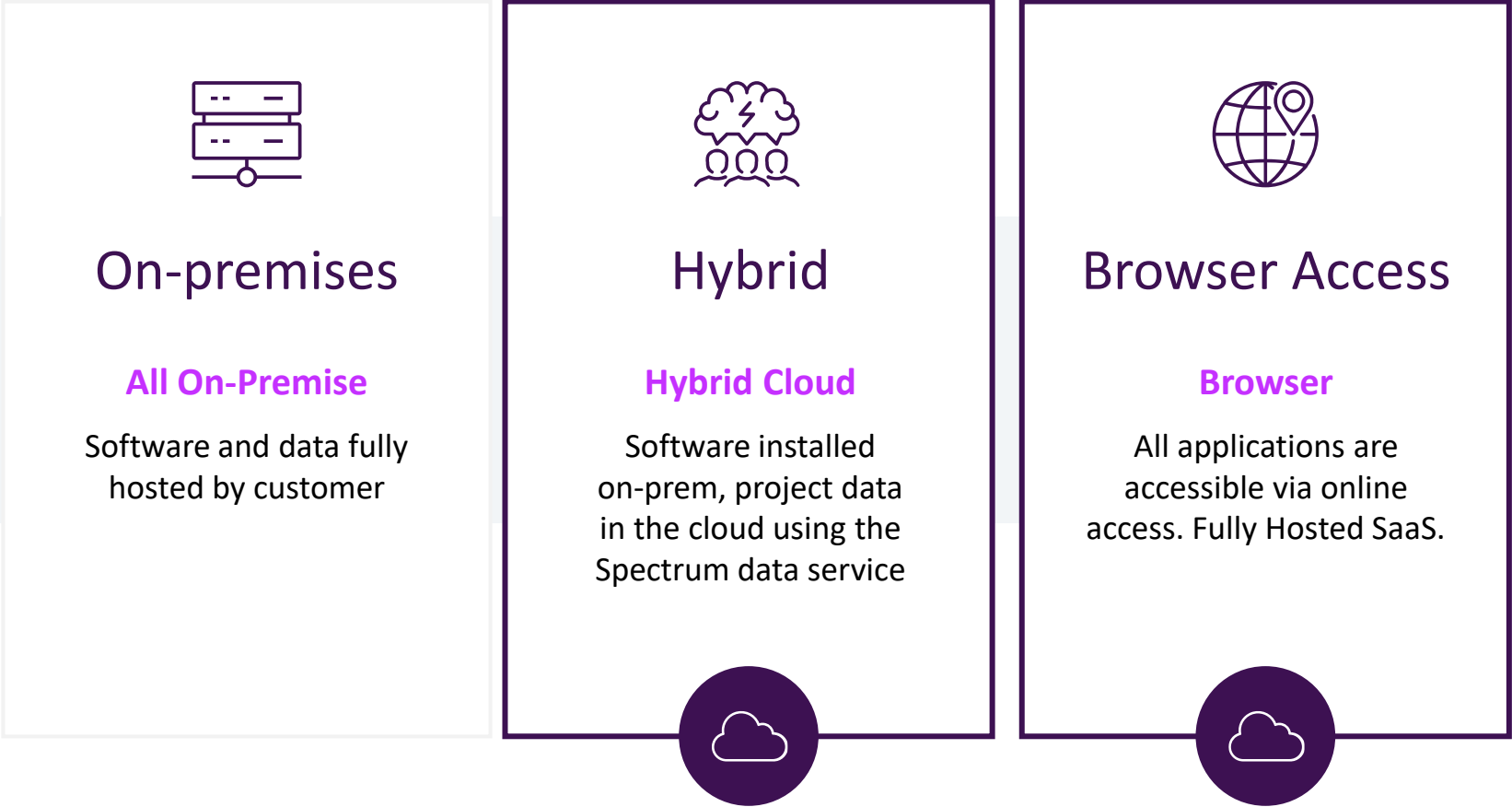
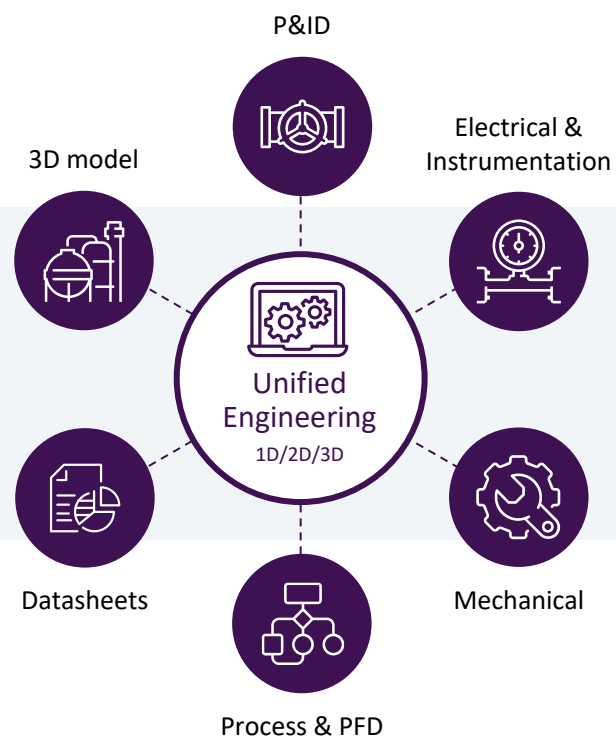
Instrumentation discipline

- Instrumentation engineers
- Monitoring and control of the assets
- Loop diagrams etc.



Benefits of AVEVA Unified Engineering

Customers achieve real improvements when they transition – fast, flexible deployment

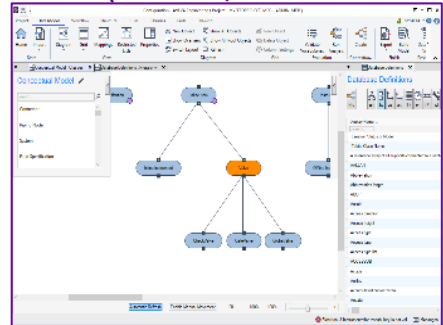


Engineering and Schematics

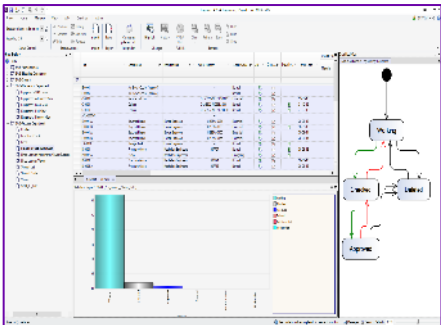


Key capabilities

Configurable Conceptual Data model (Classes, Attributes etc)



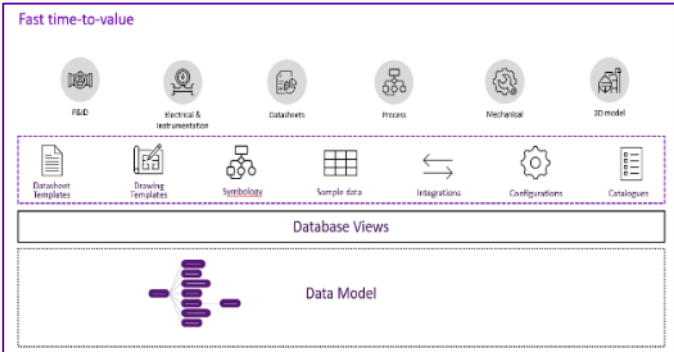
Status Control



Highlight changes

A screenshot of the software interface showing a table with multiple rows. Several rows are highlighted in orange, indicating changes or specific data points of interest.

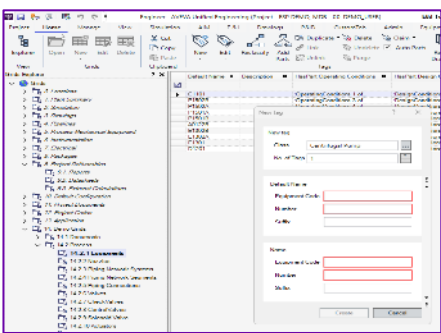
Default Configuration



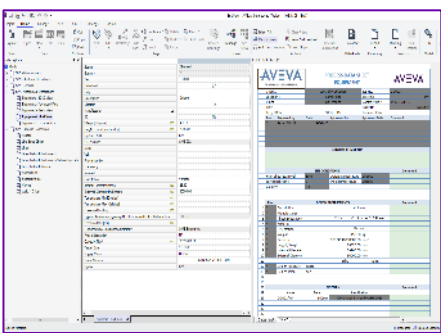
Dynamic Lists & Sublists

A screenshot of the software interface showing a dynamic list and sublist table. The table has multiple columns and rows, with some rows highlighted in blue.

Naming Rules

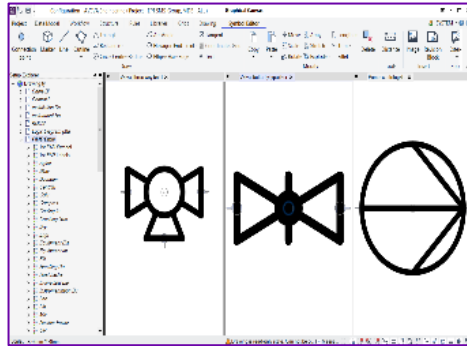


Datasheets & Reports

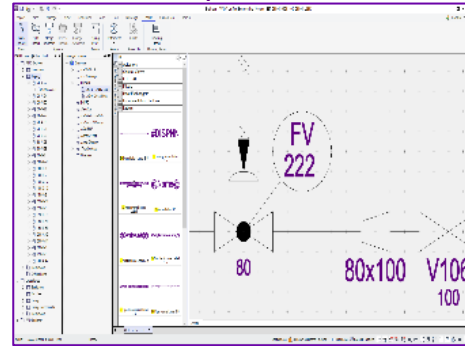


Process design

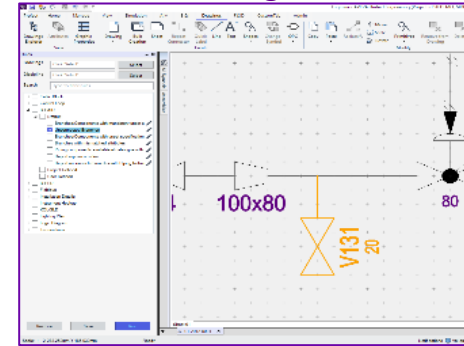
Symbols Libraries



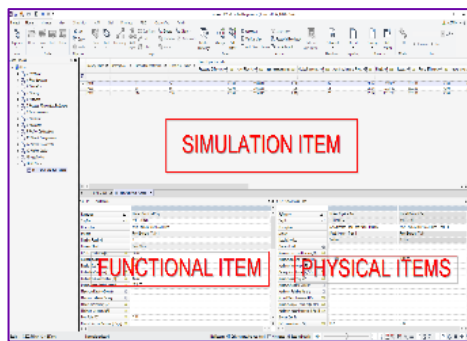
Dynamic Labels and Explorers



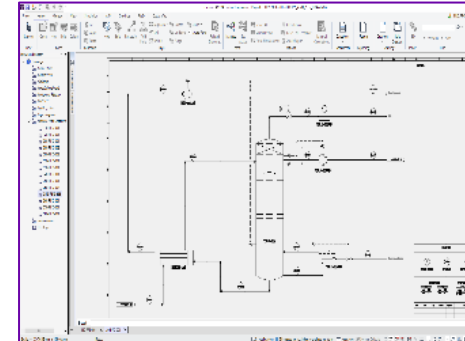
Formatting & Checking Rules



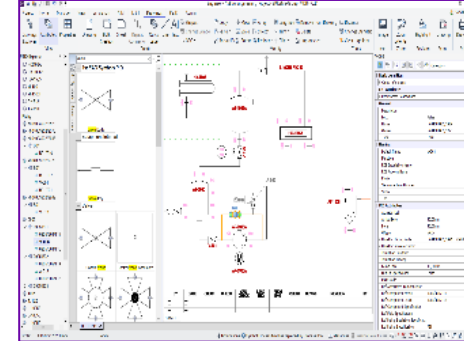
Simulation Data & PFD & P&ID Business Logic



PFD Design



P&ID Design



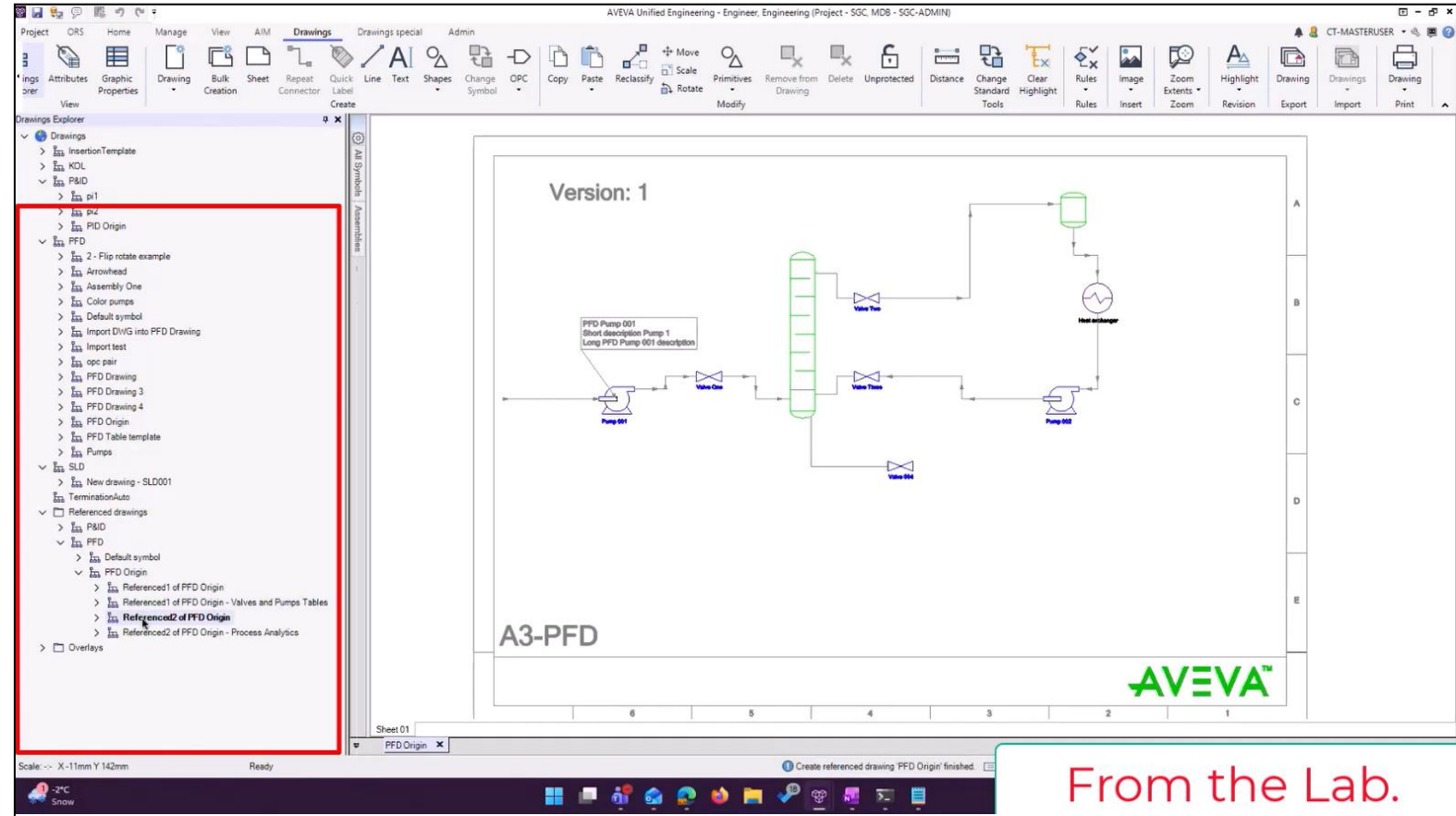
AVEVA Unified Engineering Process disciplines



In development
for UE 4.1

Referenced drawing

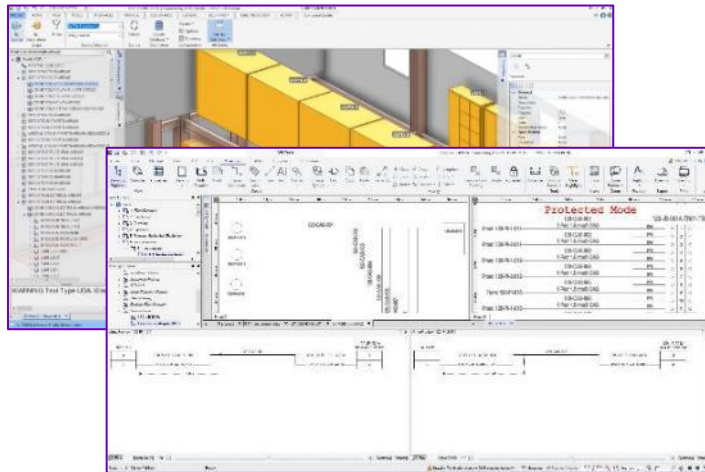
- New data-driven technology to create Referenced Drawings, enabling the management of variations of a drawing.
- **Cloned from the master drawing**, allowing the application of new colouring, formatting, consistency rules, or additional labelling and commenting information.
- These reference drawings can be used for **Material Selection Diagrams, Flow Isolation analytics, HAZOP, Decommissioning / Commissioning preparation ...**



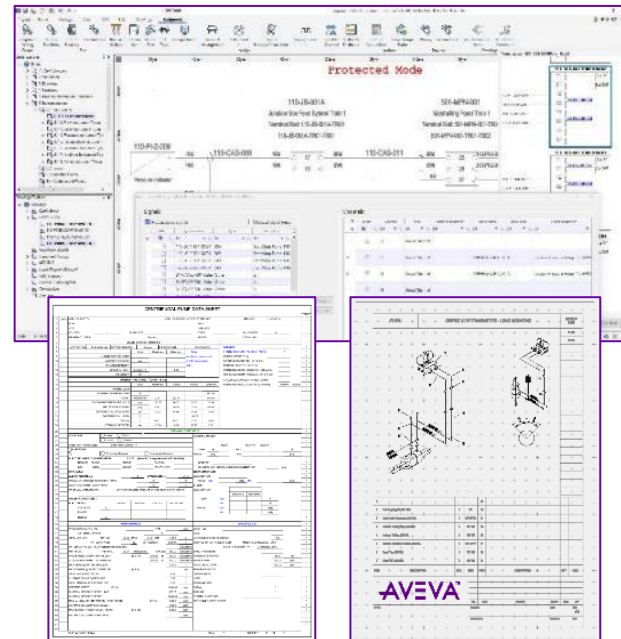
From the Lab.

Electrical & Instrumentation Design

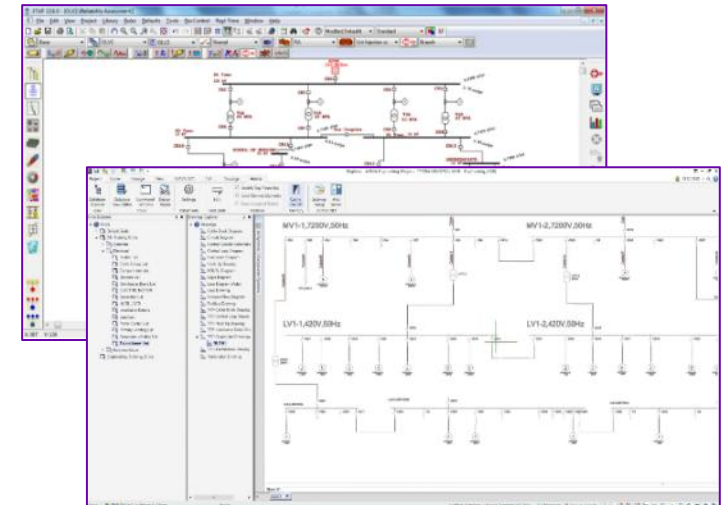
E&I managed concurrently with
Process and 3D model data



Standard Symbols and Assemblies, BoM,
Drawing Templates for E&I key
deliverables



Default Interfaces available for
External calculations (ETAP, Excel)



Electrical & Instrumentation

Key deliverables

Termination Drawing

Lighting Plan

Single Line Diagram

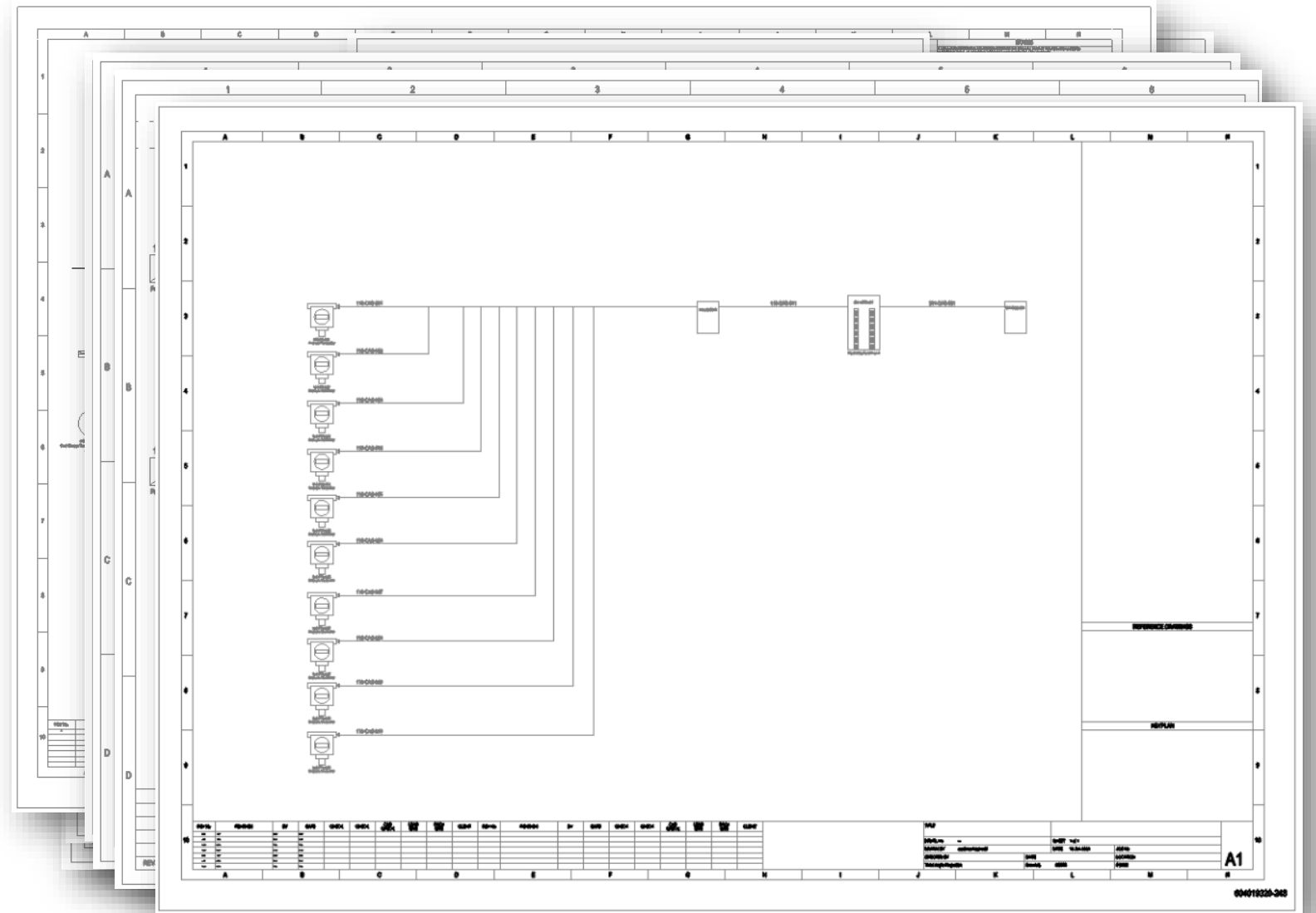
Hook-Up Drawing

Installation Drawing

Fieldbus Network Diagram

Loop Diagram

Cable Block Diagram



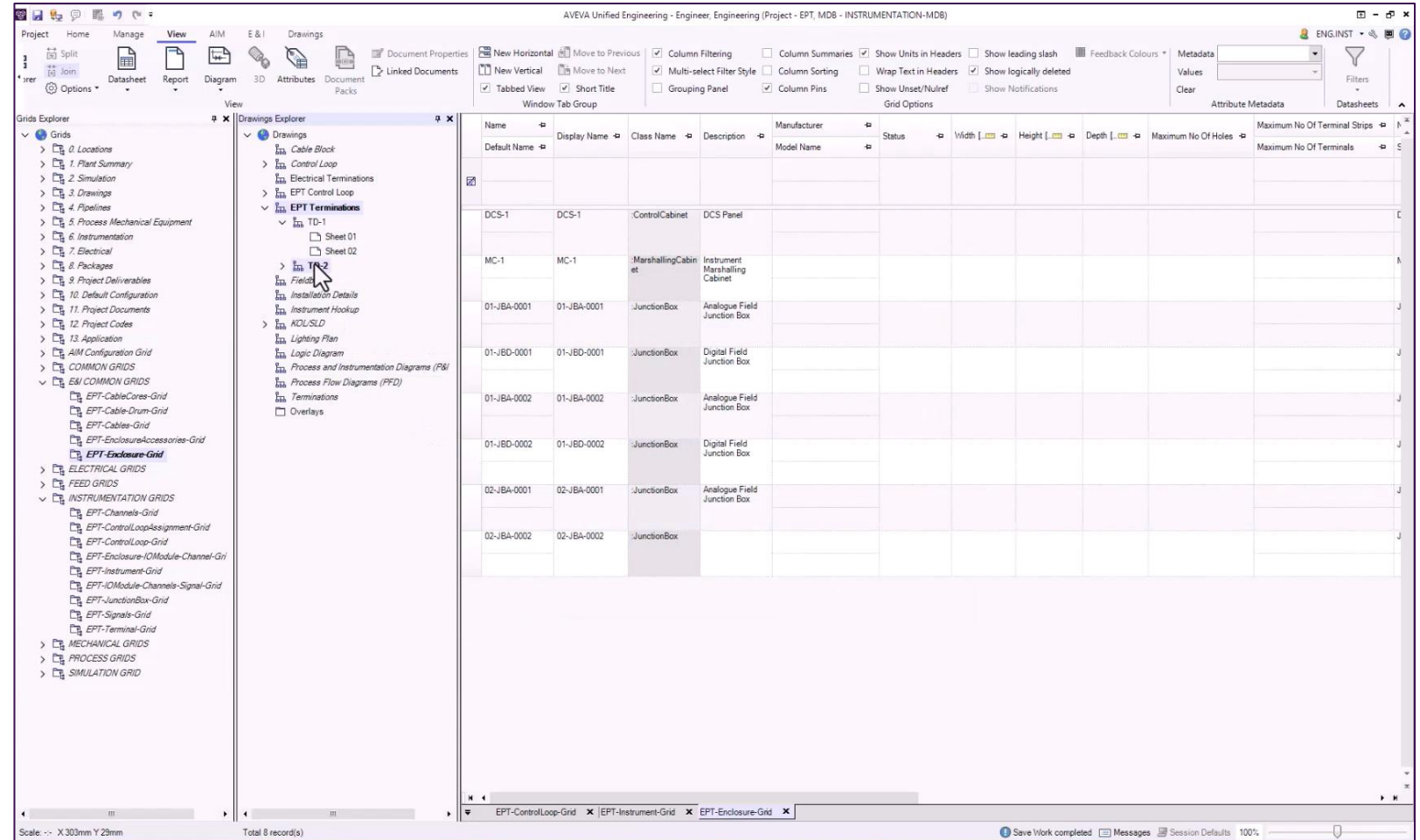
Electrical & Instrumentation current development



Available today

Termination diagrams

- New dedicated form for managing and controlling termination diagram content
- Ability to select the correct template style based on site requirements
- Automatic placement of required objects on the diagram according to the chosen template



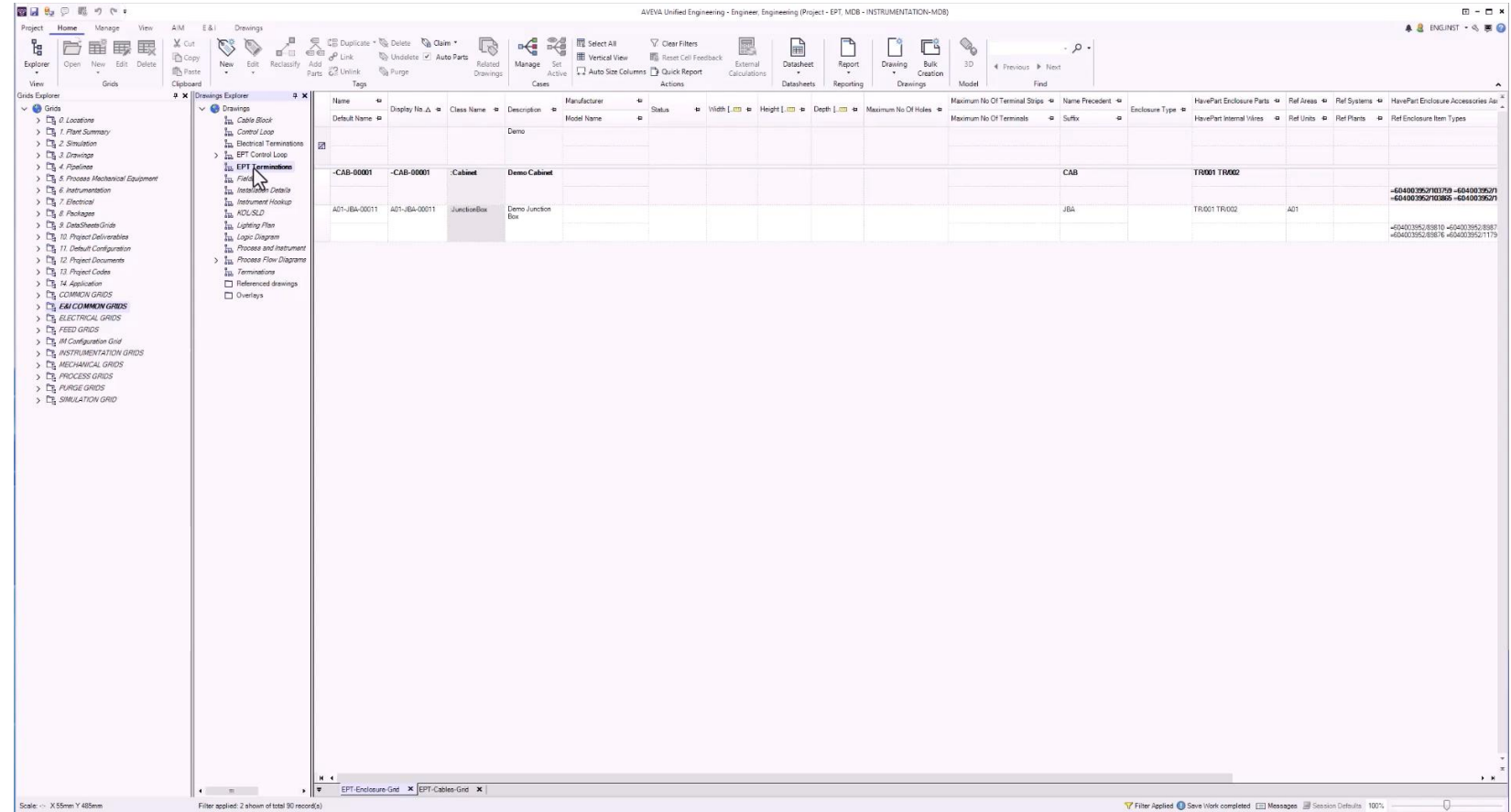
Electrical & Instrumentation current development



In development
for UE 5.0

Interconnection Diagrams

- Enhanced form with new properties defining the required number of connections
- Flexible, editable display options for viewing and managing diagrams
- Full-connection visualization on a single diagram for easier loop checks and erection activities



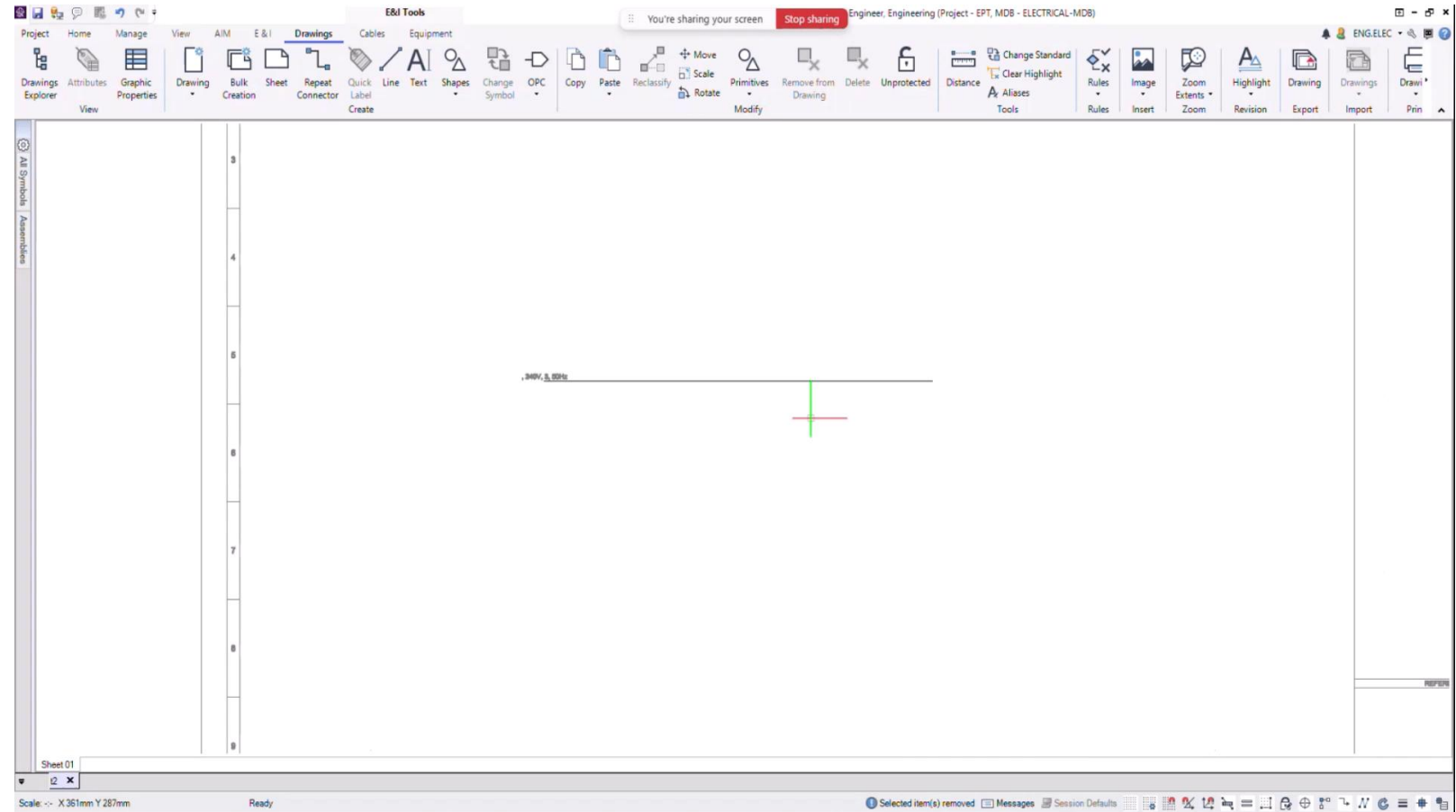
Electrical & Instrumentation current development



In development
for UE 5.0

Semi-automatic SLD generation

- New engine for semi-automatic generation of Single Line Diagrams
- Automatic placement of main electrical objects
- Smart connection routing reducing manual drafting effort
- Editable generated layout, allowing users to refine positions and symbols
- Accelerates diagram creation and improves consistency across projects



AVEVA Unified Engineering: 1D/2D

Multi-Release Forecast: Feature Delivery

H2 2025

Unified Engineering 4.0.0

- **Browser Access Option**
- Engineering Core Improvements:
 - Compare / Update: improvements
 - Conceptual model DELTAS import previews
 - Grids Export across projects
 - Model integrity tool
- Datasheets Improvements: Multiple option Nested parts area creation, Filter on datasheet list
- Generic Graphic Improvements:
 - Visual styles
 - Dynamic Table template
- Rules Engine improvements : PML expression (data analytics only), visual styles
- FEED Improvements:
 - export selected process case to APS
 - Import UO if area not existing
- PFD Improvements: Explorer Improvements, reverse flow support
- P&ID Improvements:
 - Explorer improvements
 - instrument & sub-equipment graphical association improvements
 - DEXPI Importer Improvements
 - E3D Integration (new 3DI)
- E&I Improvements:
 - Loop diagrams template region & insertion points
 - Termination drawing content assignment

H1 2026

Unified Engineering 4.1.0

- Engineering Platform
 - Migration across project improvements (datamodel delta and configuration content)
 - Roles and synonyms
- Datasheets & list Improvements:
 - Hide / Unhide page, LOV improvements
- Generic Graphic Canvas
 - **Referenced drawings**
 - Intelligent text hierarchy navigation
 - Symbol text rotation
 - Basic Copy/Paste drawings (preview)
- Rules Engine improvements :
 - Embedded rules (rules, copy, transfer ...)
 - PML expression improvements
 - Feedback management improvements
- P&ID Improvements:
 - Auto-orientation of the symbols
 - Item & component association improvements
 - Advanced referenced drawings (MSD / corrosion loop, ...)
 - Migration improvements
- E&I:
 - Termination diagrams improvements (content lazy loading)
 - Load calculations for loading scenarios (cases) improvements
 - Workflow improvements

H2 2026

Unified Engineering 5.0.0

- Engineering Platform
 - Item Commenting
 - Generic data source API and C/U improvements
 - Semantic relationship from backreference
- Datasheets Improvements:
 - Revision Marks and Docpack improvements
 - Bulk Compare and Export of Datasheet Revisions
- Generic Graphic Canvas
 - Compound Symbols data driven
 - Basic Copy/Paste drawings
 - Typical & Patterns Library (Phase I)
- NAM:
 - Alternative naming rules
 - Counter inheritance
- PFD Improvements:
 - GUI improvements (Item List, Explorer improvements)
 - Stream Split & Merge, reverse flow management
- P&ID Improvements:
 - Advanced referenced drawings improvements
 - Advance line gaps management
 - Migration Improvements
- E&I:
 - **Interconnection diagrams (first connected)**
 - New Distribution boards
 - **Semi-automatic SLD creation**
 - Workflow improvements

Next Focus Areas / Working with

- Concurrent Engineering
- Drawings Design Reuse
- Typical & Patterns Library
- DEXPI 2.0 Import / Export
- AI datasheet attribute automapping
- Next Generation Process Design
- GenAI (APS to PFD)
 - PFD generation from Flow sheet
- GenAI (PFD to P&ID)
 - P&ID generation from PFD
- HVAC Mode
 - Graphic interface & Catalogue Management
 - Integration Management
- Marine Mode
 - Graphic interface & Catalogue Management
 - Integration Management (Hull Backing sheet)
- Design Rule Engine
- E&I Improvements
 - Loop copy wizard
 - Universal I/O's
 - Vertical sections/busbars modelling and calculations
- New ETAP connection (TBC)
- Common data modelling service

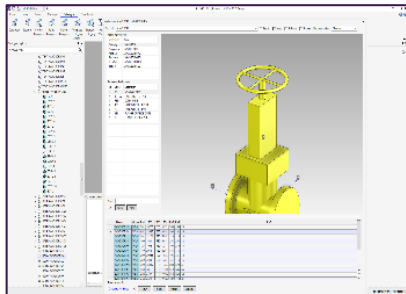
3D Design

3D Design

AVEVA

Key functionalities

Catalogue & Spec



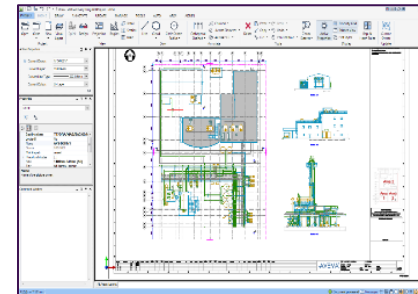
3D Modeler



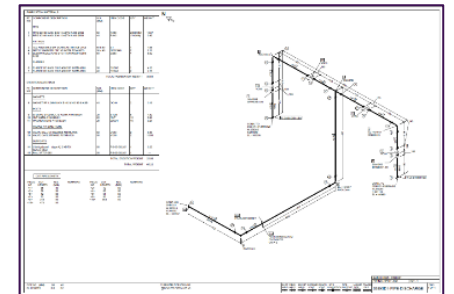
Laser Points Cloud



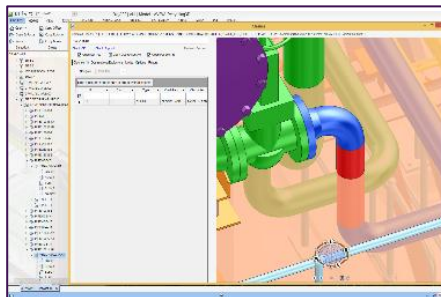
2D Drawings



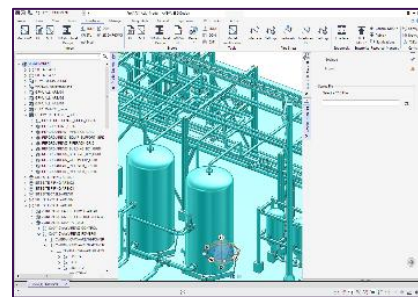
Isometrics



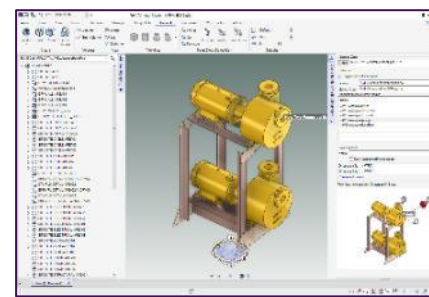
Clashes check



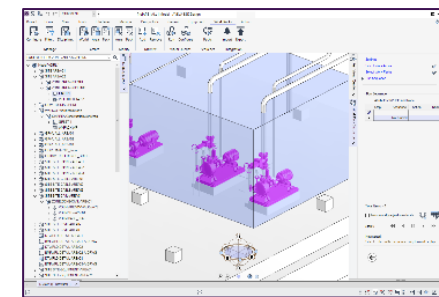
CAD Import



Standard Models

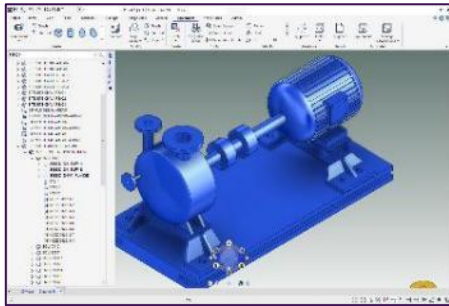


Work Packs

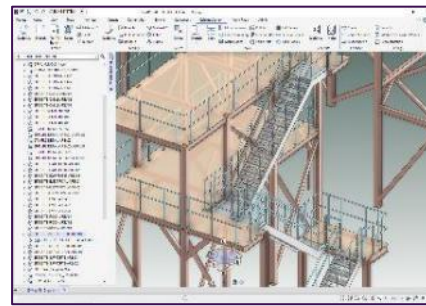


Key disciplines

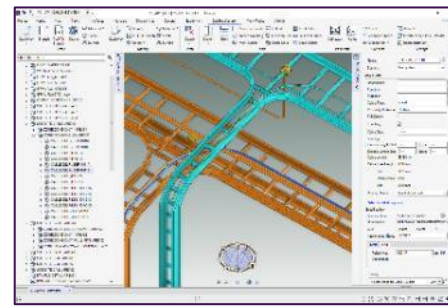
Equipment



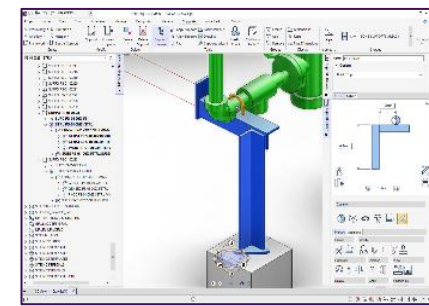
Structure



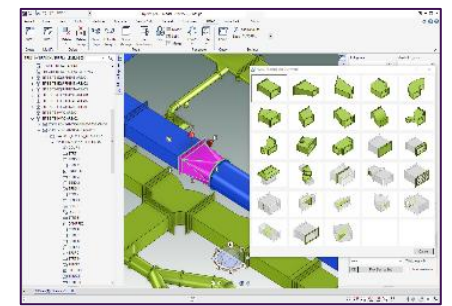
Cabling



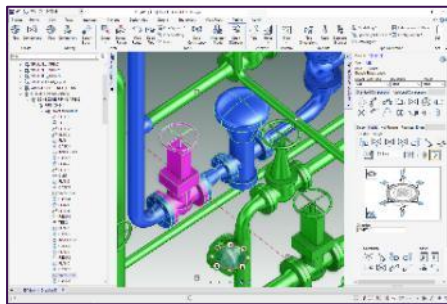
Supports



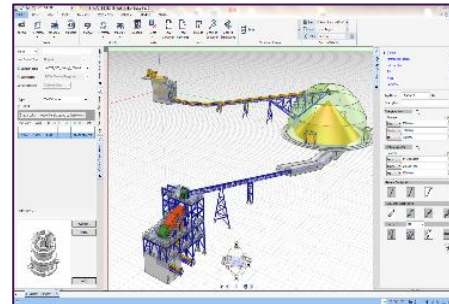
HVAC



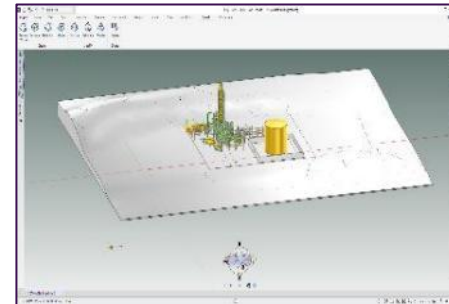
Piping



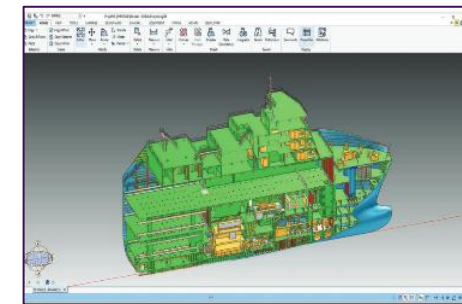
Mining



Terrain



Marine (Hull & Outfitting)

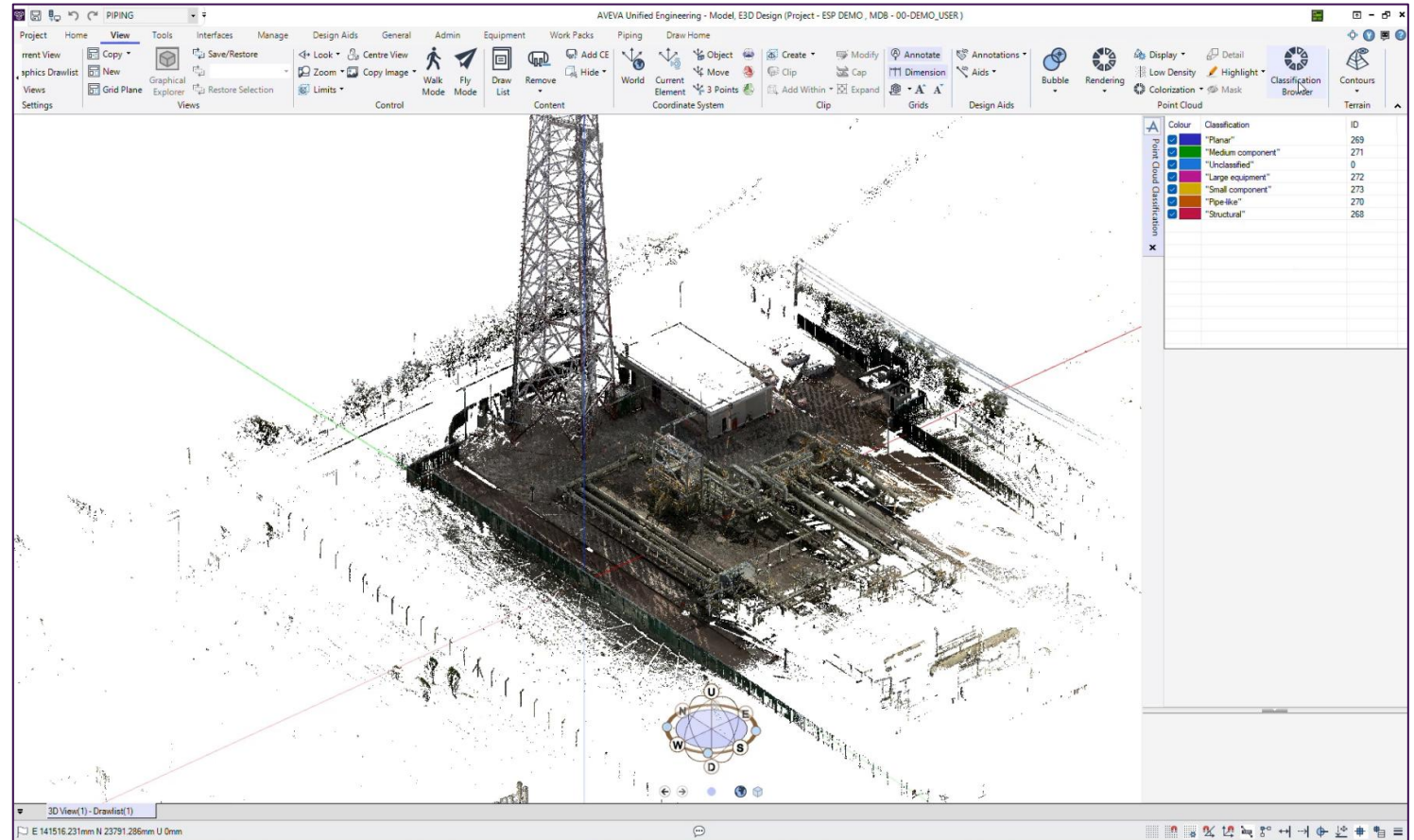


Intelligent Point Clouds in UE 3D



Available today

- Improves end-user understanding of complex laser scan data through intelligent visualization.
- Provide tools for designer to manage which parts of the laser data is shown on the 3D canvas
- Point cloud datasets are pre-processed using Point Cloud Manager on CONNECT prior to AI-based classification. Intelligent Point Cloud classifications are generated exclusively through cloud-based production workflows.



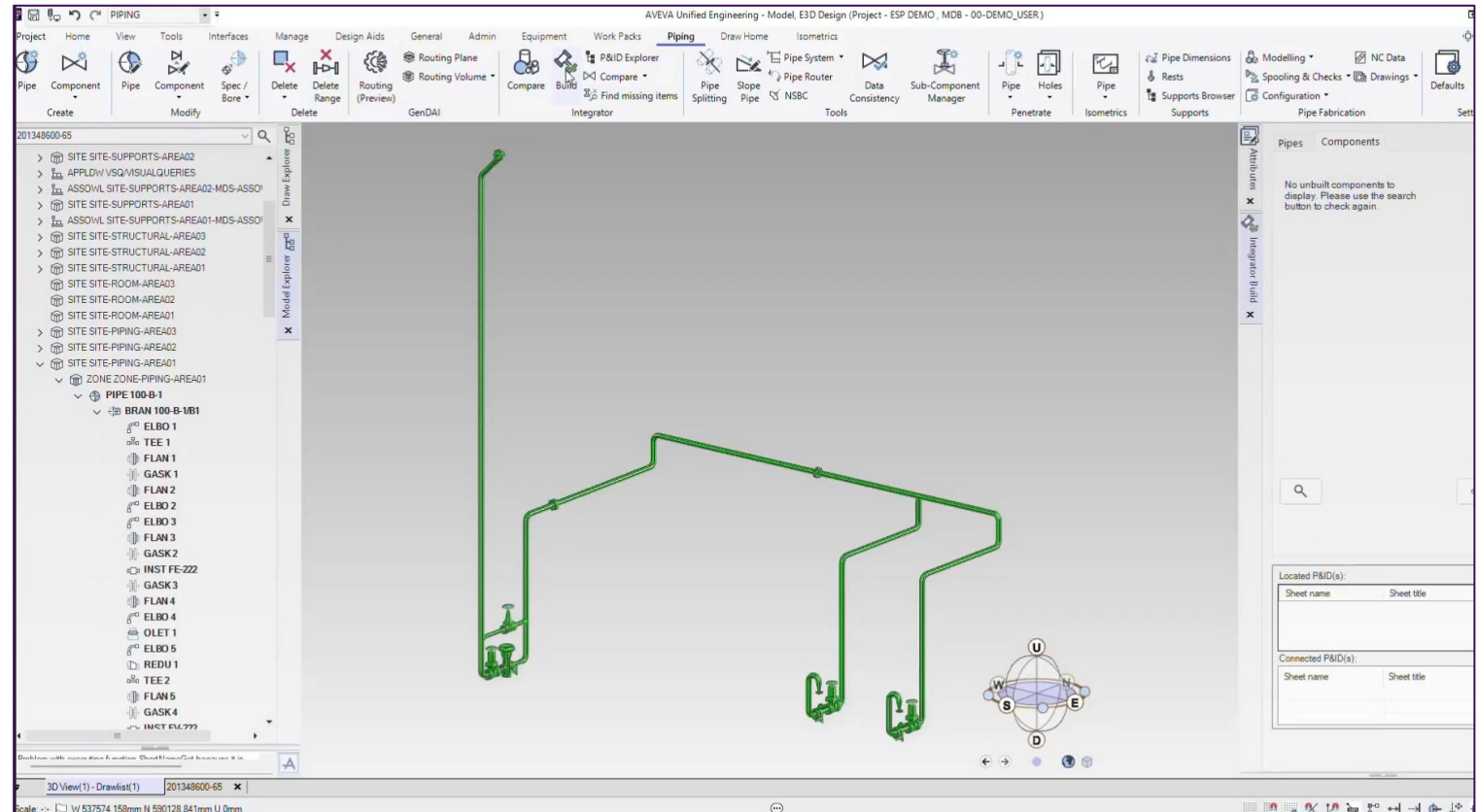
3D Integrator

Unified Engineering integration

- NextGen 3D Integrator working with NextGen P&ID data in AVEVA Unified Engineering.
- Comparison of P&ID data and 3D piping model, results highlighted in P&ID and 3D.
- Build support leveraging AI-based generative auto pipe routing to accelerate model creation.
- Comparison of attributes, components and sequence of components.
- Configurable against Engineering data model.
- Branch matching, Equipment matching, Building Missing piping components, and Accept differences



Further
enhanced in UE
4.1.0



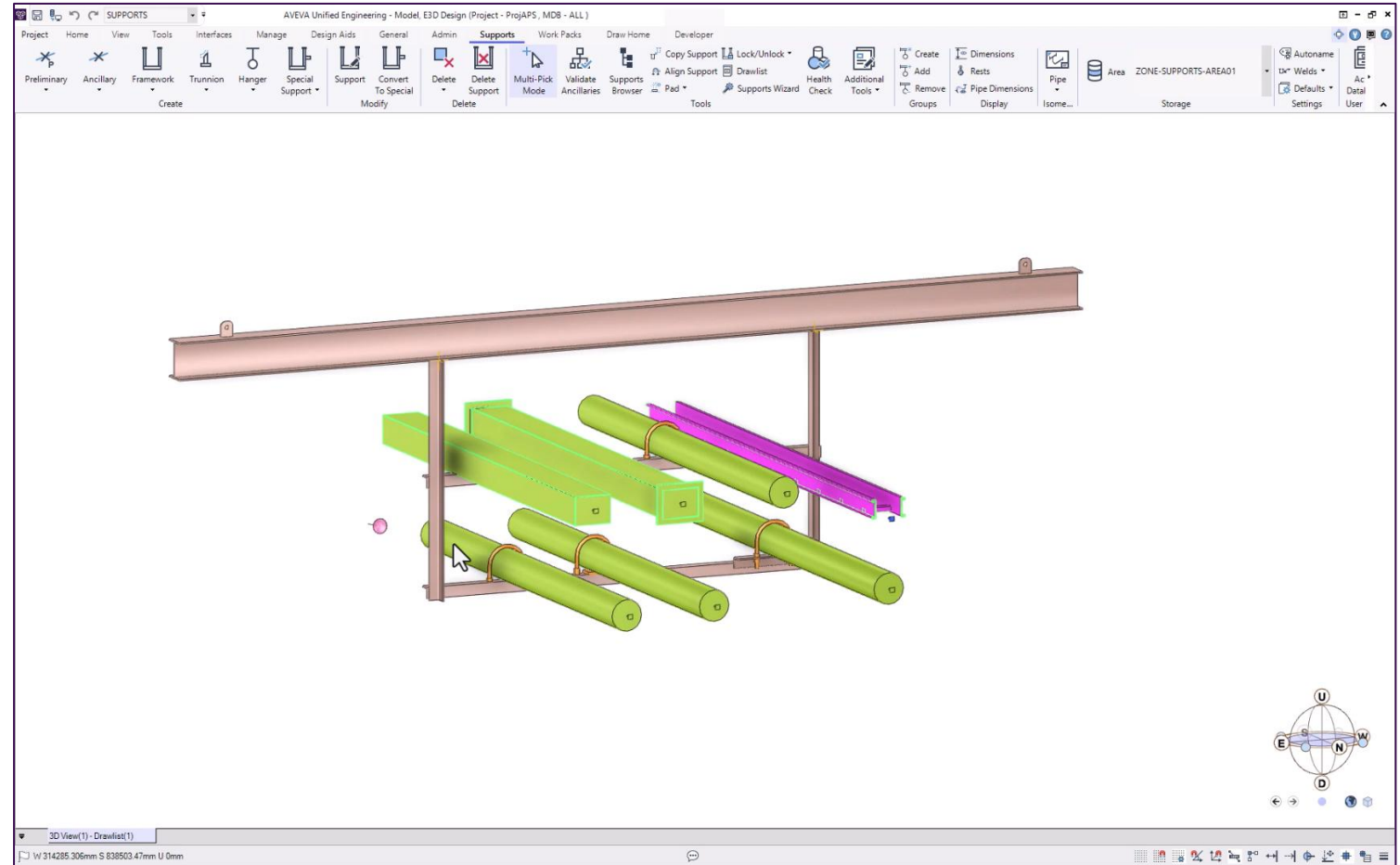
Rule-based support placement



In development
for UE 4.1

Requirement Details

- Requirement is to enable automatic selection of support ancillary and framework type based upon pre-defined rules.
- Rule definitions can incorporate pipe characteristics such as bore size, temperature, and material, as well as contextual conditions including position, orientation, and installation scenarios.
- Rules defined within Paragon module using Rule Manager Framework, originally introduced for Structural Automatic Joints



Draw based Isometrics creation

-

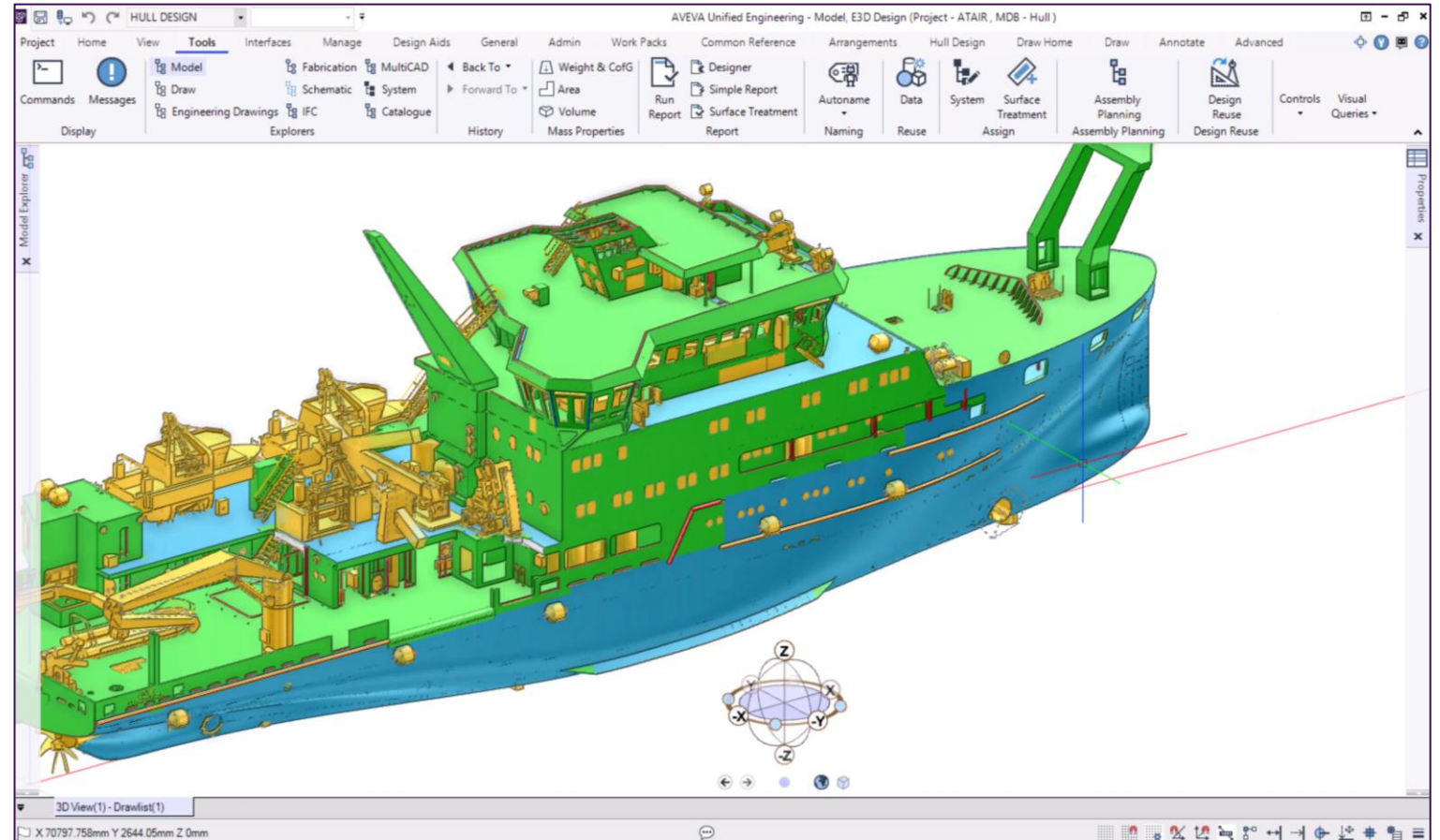
Marine design



In development
for UE 5.0

Marine hull design

- Basic & Detailed Hull Design — Full modelling capability for curves, panels, stiffeners, brackets, clips, block division
- Production Output — Manufacturing parts, plate/profile development, bending templates, marking & welding connections
- Drawing Integration — Symbolic representation of hull elements in DRAW; production info model flows into deliverables
- Migration from 12.1 — Grid, surfaces, curves, drawings, outfitting models & assembly hierarchy all migrate; toolbar-integrated conversion tools



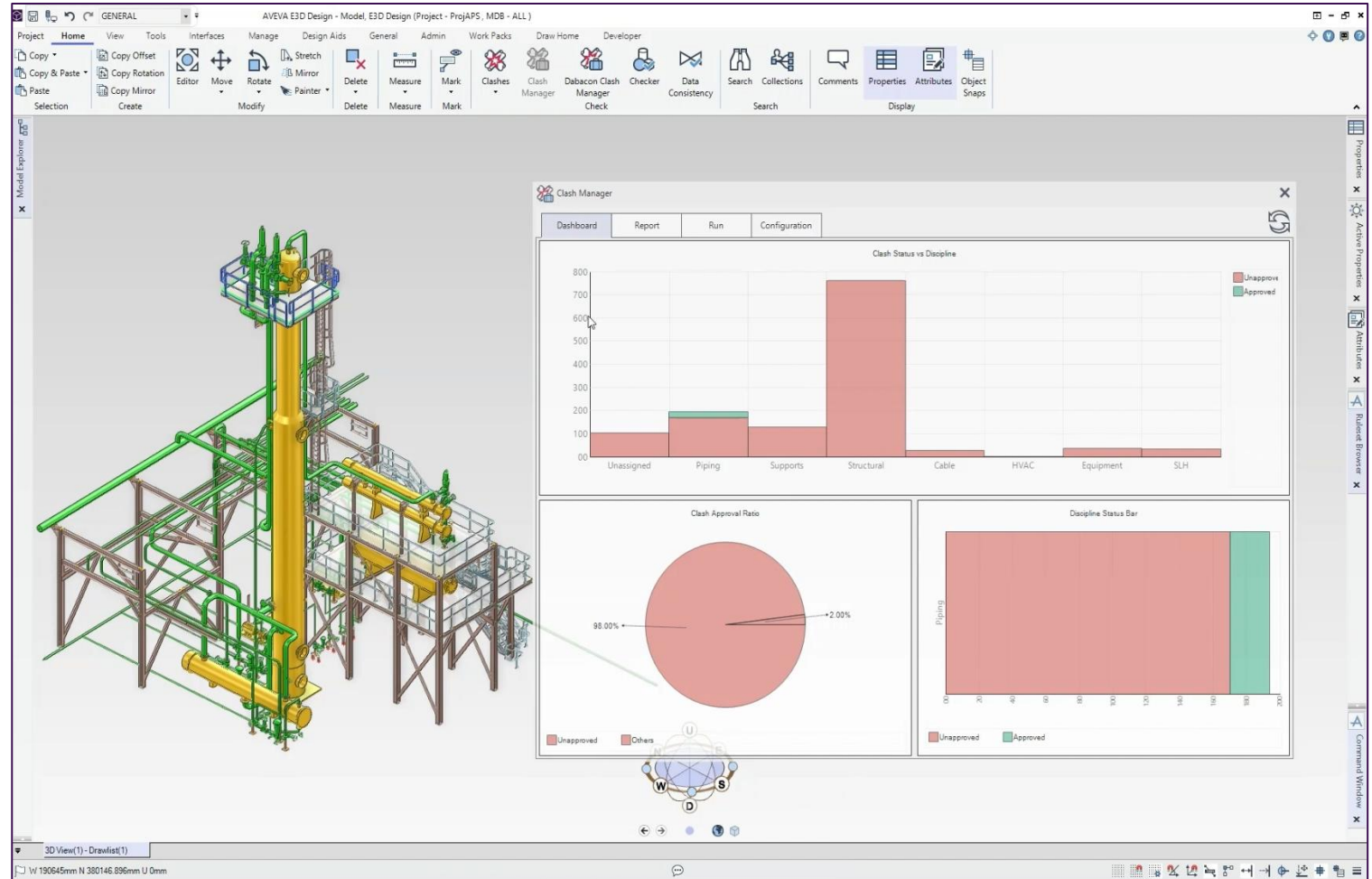
Clash Manager



In development
for UE5.1

Embedded to AVEVA Unified Engineering

- Introduces a modern, integrated replacement for the legacy AVEVA Clash Manager solution.
- Stores clash information in Dabacon , enabling distributed clash management and collaboration through Spectrum.
- Supports live clash resolution within the design environment, with immediate re-checking to validate fixes in real time.
- Exposes clash data for workflow customisation via PML.



AVEVA Unified Engineering: 3D (excluding Marine)

Multi-Release Forecast: Feature Delivery

H2 2025

Unified Engineering 4.0.0

- **Browser Access Option**
- Piping: Sub-components – Insulation Boxes
- Piping: P&ID Integration with canvas interaction
- Piping: PCF Export
- HVAC: Catalog Improvements
- Laser: Inclusion of Pointcloud Manager 25.2
- Laser: Inclusion of Laser Intelligent Pointcloud
- IFC Import: Hierarchy Improvements
- Model Simplification: Corrections & Improvements

H1 2026

Unified Engineering 4.1.0

- Reintroduce Graphical Explorer with enhanced cache creation
- Piping: Sub-components – Insulation Boxes (Rule Check)
- Cable: Permissible Specifications
- **Piping: P&ID Integration improvements**
- **Supports: Rule-based supports**
- Laser: Inclusion of Pointcloud Manager 25.4.2
- IFC Import: Additional Improvements
- TTY mode licensing with increased share limit
- **3D performance improvements 5-30%**

H2 2026

Unified Engineering 5.0.0

- **Isometrics: Draw based deliverable**
- **Piping: P&ID Integration improvements**
- Cable: Support for Vertical Tees
- Cable: Use of Varied Tray Length
- Laser: Inclusion of Pointcloud Manager 26.x

Next Focus Areas / Working with

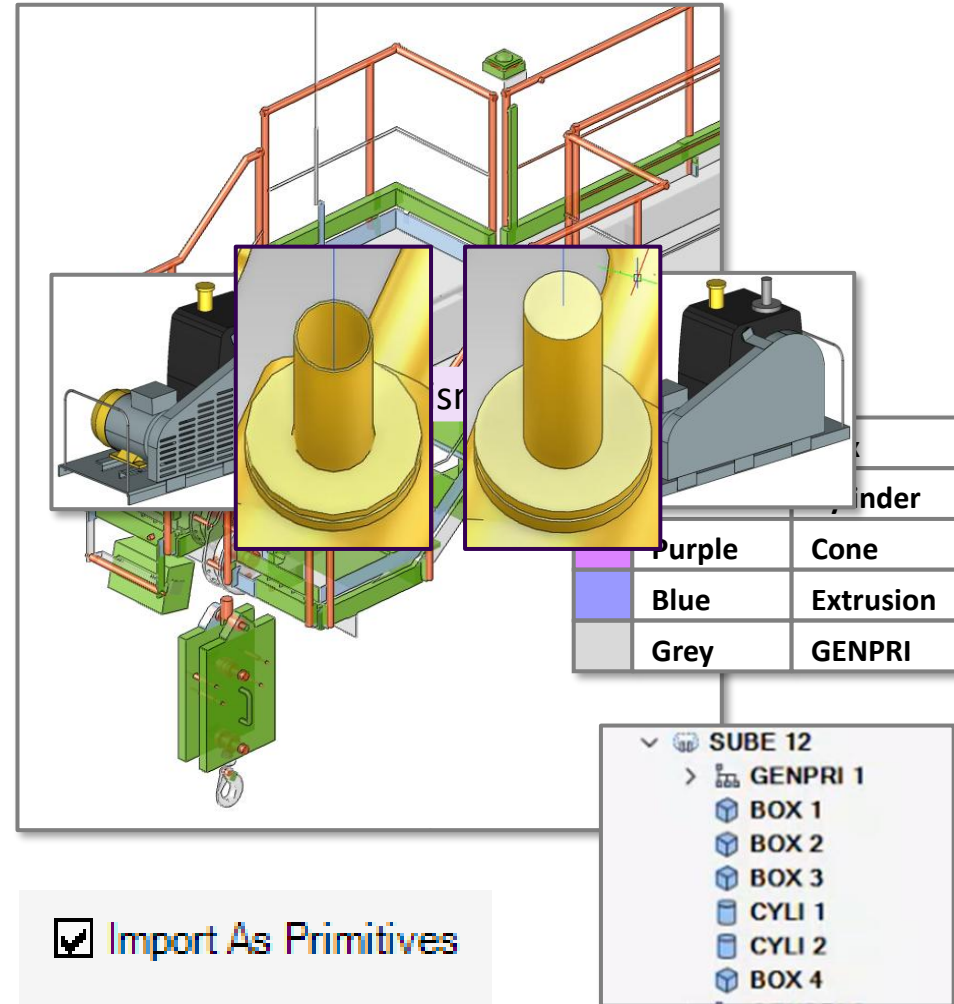
- **Clash Manager on Dabacon**
- LCS for all disciplines
- Extending usage of IPC
- Improving Cables/Cableway workflows and extended configurations
- NextGen 3D graphics and interaction
- Structures: Improvements to Bounded Plate

Interoperability



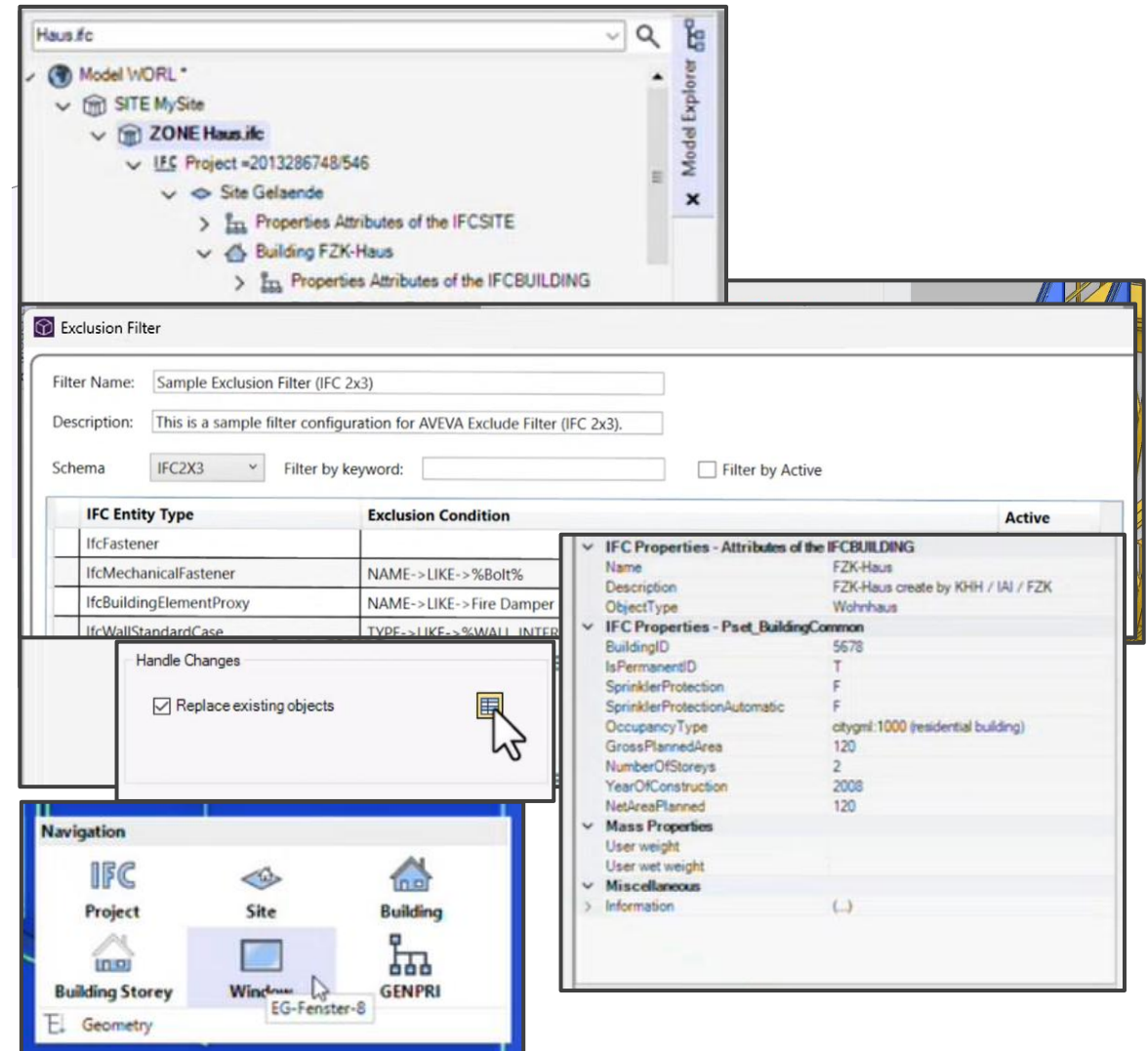
Model Simplification

- UE 4.0
 - Native primitives creation improved, to get higher percentage of primitives vs. GENPRI
 - Improvements to box simplification, to avoid “too boxy” outcomes
- UE4.1
 - Simplification engine improvements including “prism” simplification for complex bodies
 - Cylindrical filled/unfilled threshold setting



BIM - IFC

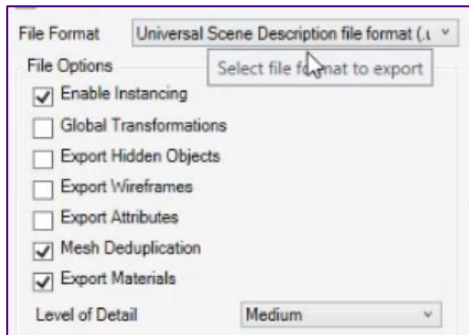
- UE 3.1
 - Handling of changes on re-import of a new version of an IFC file, keeping refno's
 - Change Detection will allow users to understand what has changed
- UE 4.0
 - Extended hierarchy depth allowing more granular split using SUBE of SUBE
 - This will allow a 1-to-1 representation of the class hierarchy present in the IFC file
- UE 4.1
 - Limited IFC 4.3 support
 - Pseudo attributes for imported IFC attributes
- UE 5.0
 - Improved explorer & graphical canvas navigation for imported IFC data
 - Imported IFC attributes in properties panel
 - Import Filtering to improve performance



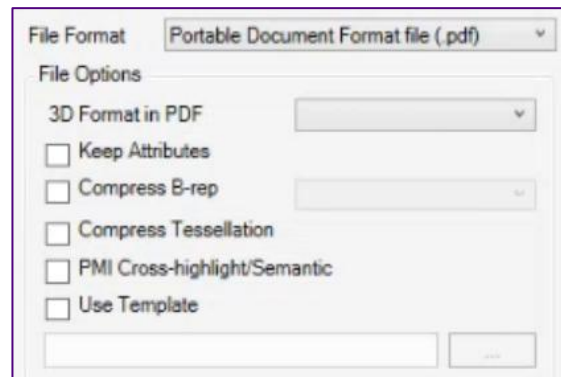
MultiCAD Export

- New feature to extend the range of formats supported by MEI Export today:
 - For example: STEP AP242, OpenUSD etc...
 - Any formats supported by Hoops Exchange
- Specific settings per format
- Preliminary release in UE5.0 (TBC)

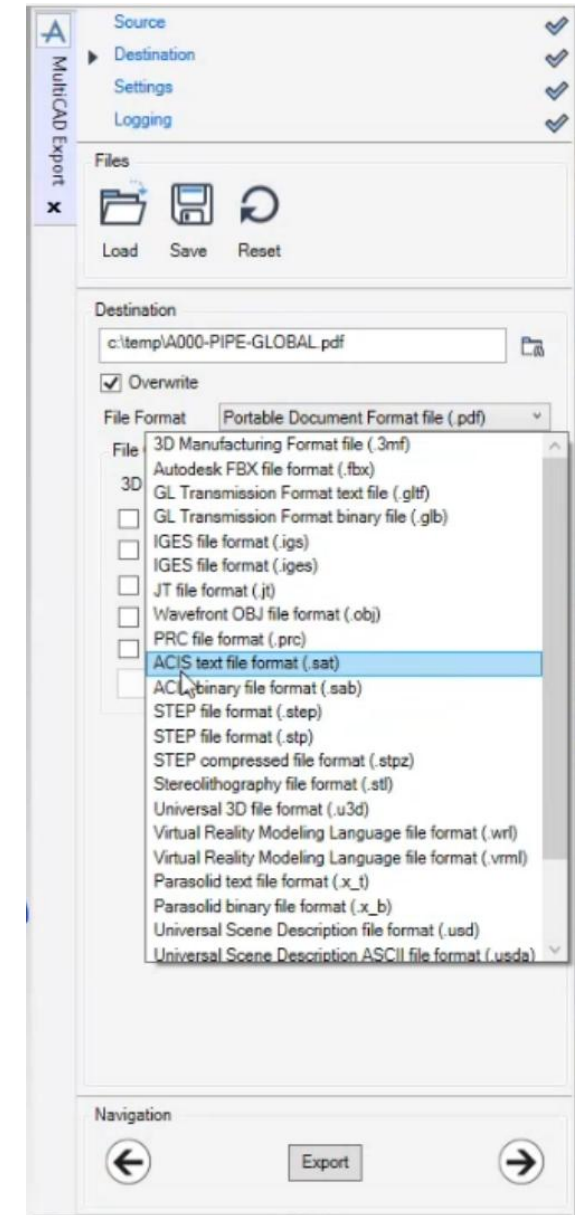
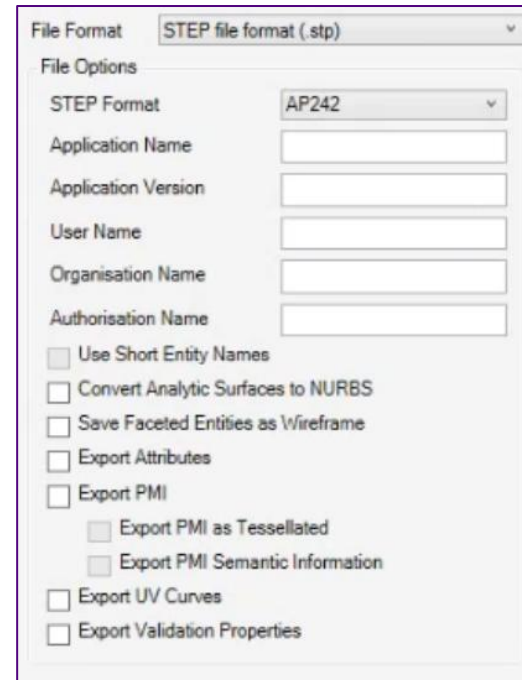
USD



3D PDF

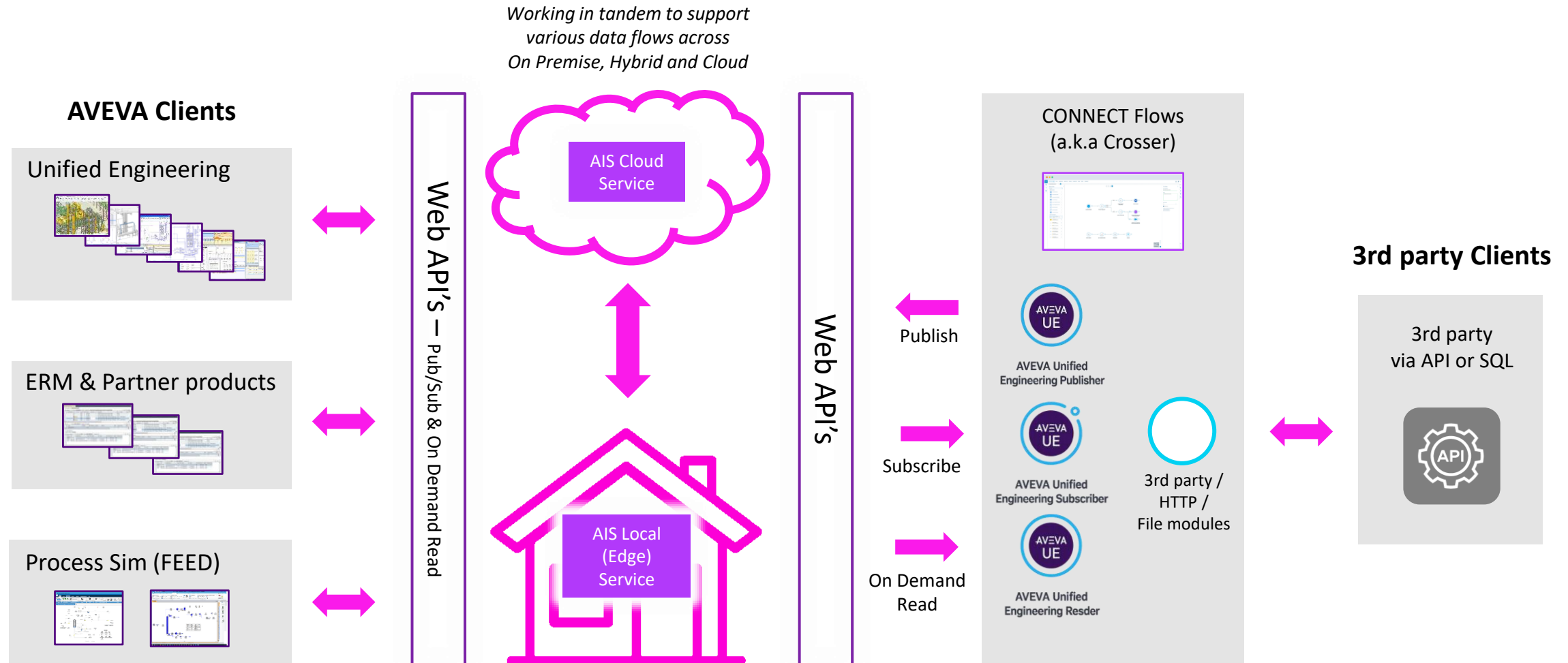


STEP



Web API based interoperability

AVEVA Integration Service (AIS) & CONNECT Flows



OVERVIEW

AVEVA Industrial AI in Engineering

AVEVA

The future of engineering and design

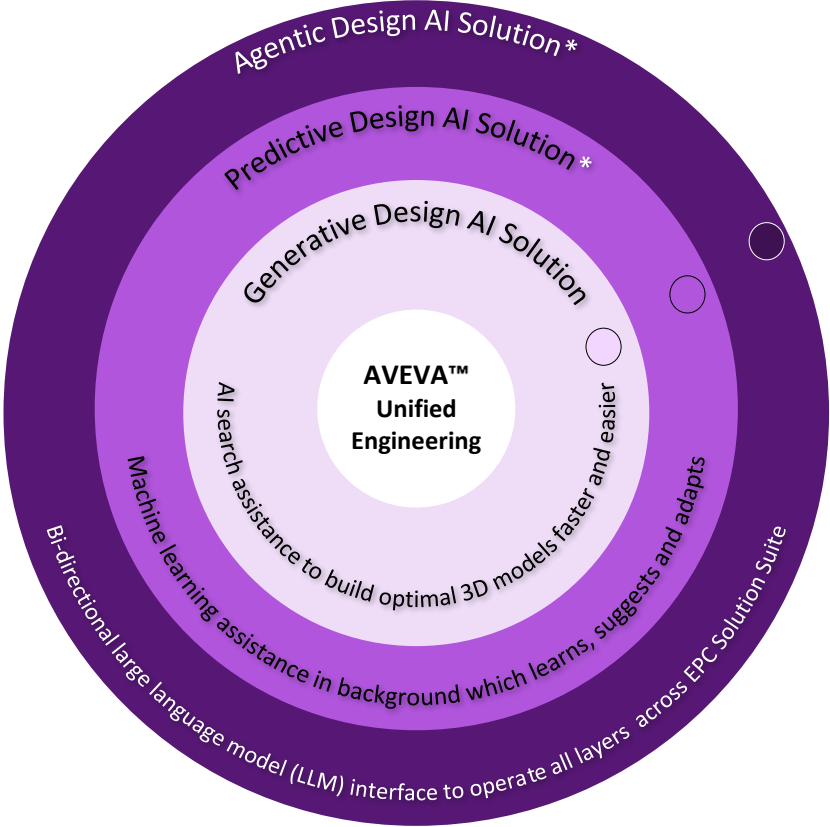
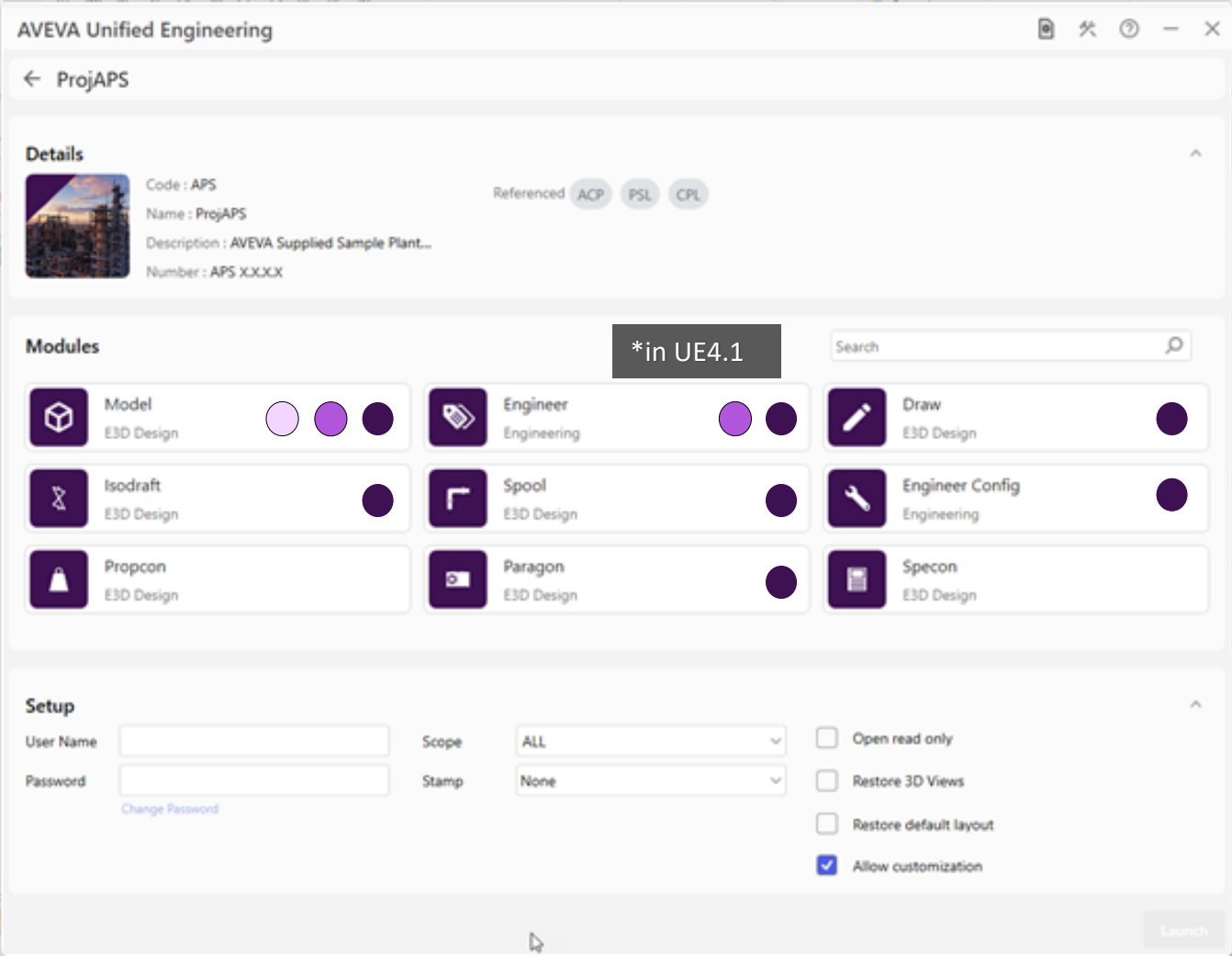
Multi-layered and co-ordinated suite of AI capabilities



AI Strategy for
Engineering

[US 63/627414 Patent Pending]

*new AI solution in UE 4.0 release



Generative Design

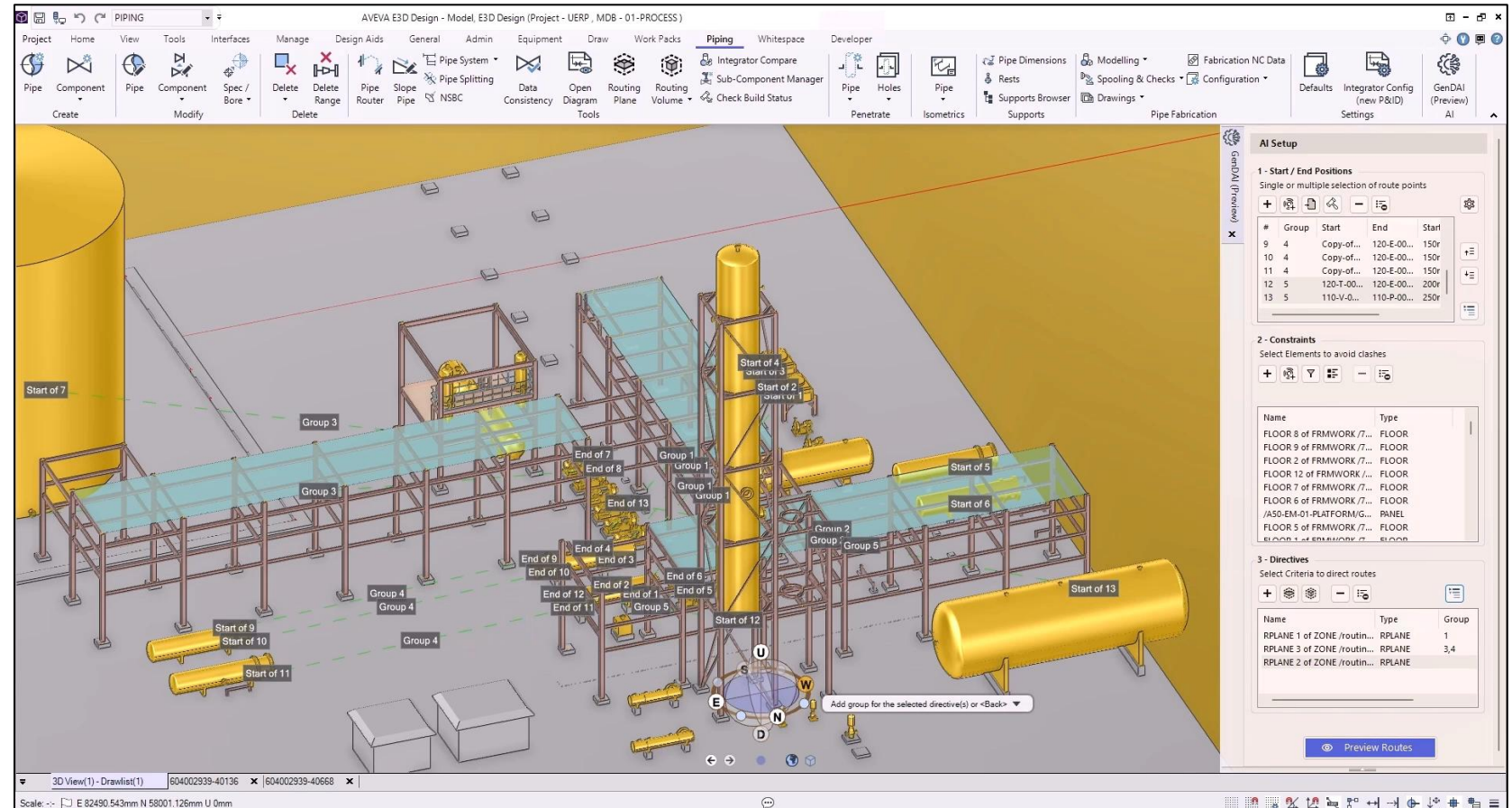


Available today
(preview)

Pipe auto routing

[Patent Pending]

- Generate feasible design options faster using an end-to-end, environment-aware AI co-pilot
 - Not dependent on historical projects data
- P&ID integration for pipe routing and component information
- Intelligent grouping and auto-routing of multiple groups of pipes
- Auto-component placement and waypoints for routing



[US 63/627414 Patent Pending]

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Predictive Design

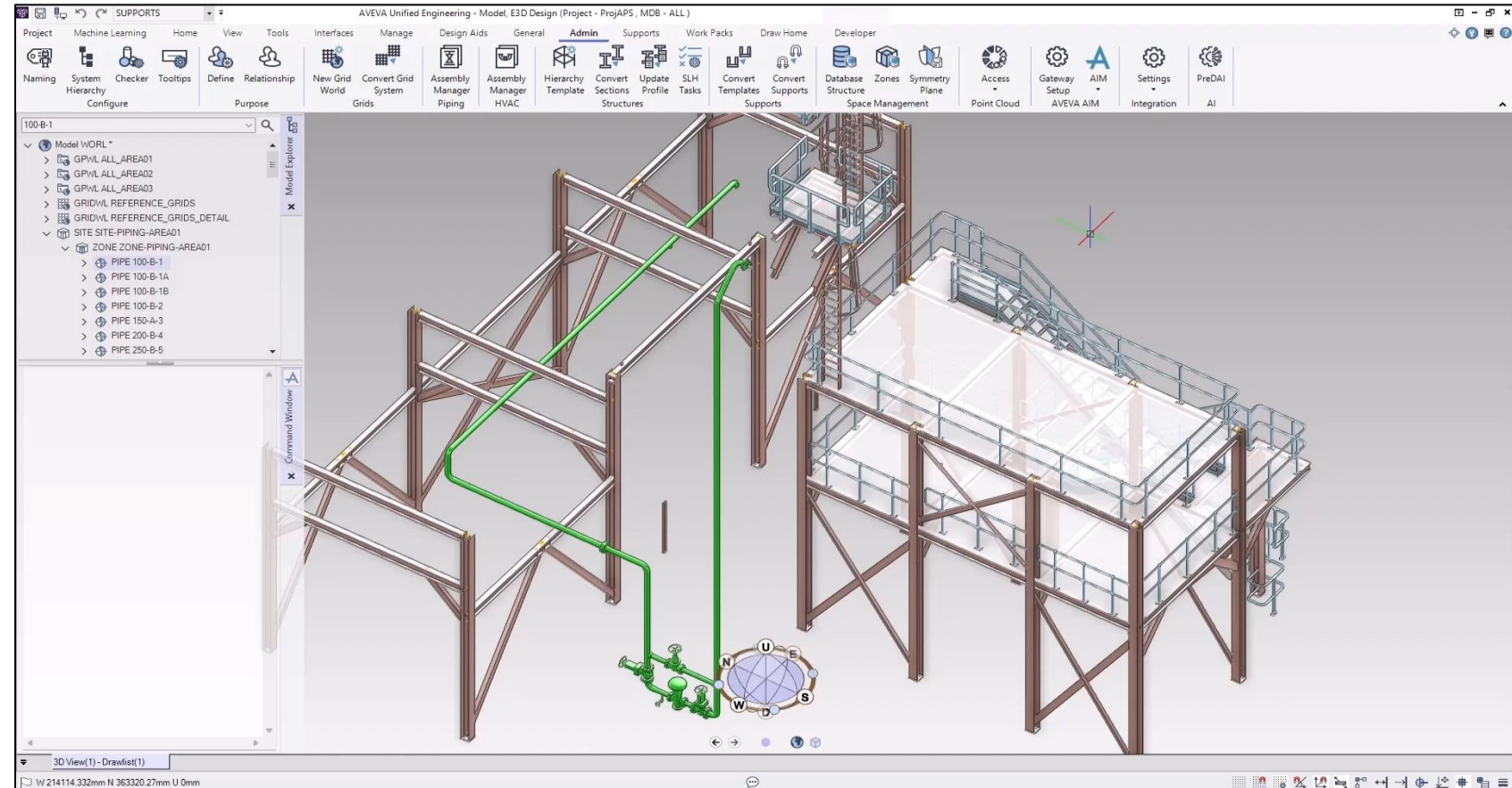


Available today

No-code ML.Net model formation

[Patent Pending]

- Fully embedded predictive design model building and deploying capability using machine learning algorithms
 - Dependent on historical projects data
- Quickly, dynamically and consistently predict design elements as per discipline needs
- Avoid multiple manual clicks to ease and speed up workflow
- On-demand assistance in background which learns, suggests and adapts



Conversational AI

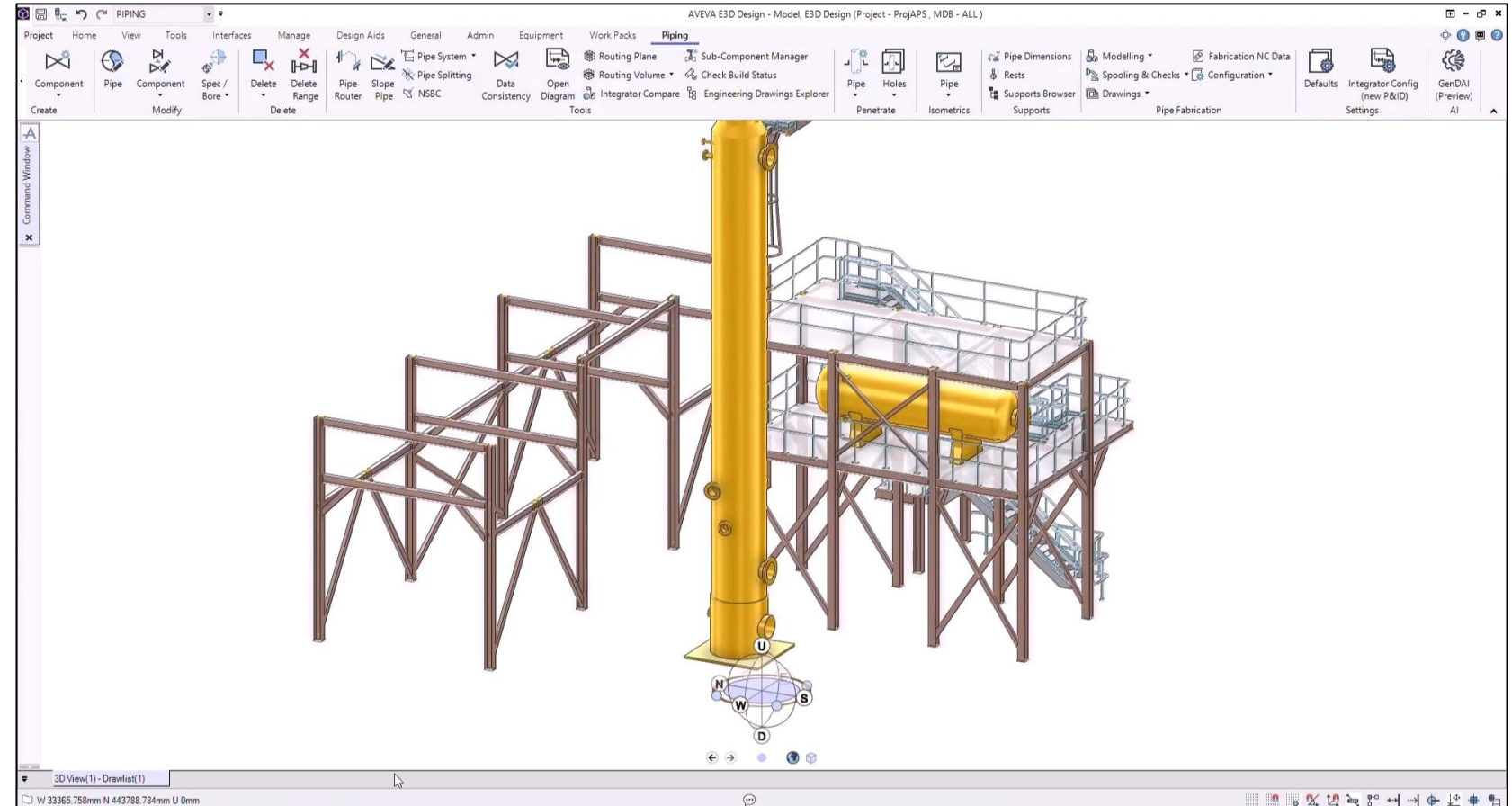


Available today
(preview)

AVEVA AI-driven Engineering Excellence | Unified Engineering

[Patent Pending]

- Bi-directional large language model (LLM) interface to query, summarize or execute tasks
 - Dependent on linking diverse data sources for context
- Increase project productivity using natural language prompt-based co-pilot that will work alongside the designer
- Get contextual user assistance and support through step-by-step guidance
- Direct Command Execution enables quick command call from the chat



AVEVA Unified Engineering: AI

Multi-Release Forecast: Feature Delivery

H2 2025

Unified Engineering 4.0.0

- AI/ML (LLM): AI Assistant (preview)
- AI/ML (Gen. Design): Advanced Pipe Auto-routing (Preview)
- AI/ML (ML): No code model formation

H1 2026

Unified Engineering 4.1.0

- AI/ML (ML): MS ML.NET lib uplift
- AI/ML (LLM): AI Assistant for query, searching, design action (read only)
- AI/ML (ML): No code model formation for Engineering module

H2 2026

Unified Engineering 5.0.0

- AI/ML (Gen. Design): Advanced Pipe Auto-routing (production)
- AI/ML (Gen. Design): Pipe component placement (FEED level project outcome)
- AI/ML (LLM): AI Assistant (production release)
- AI/ML (LLM): AI Assistant for design action (edit action)
- AI/ML (LLM): AI Assistant producing reports and drawings (based on templates and tasks)

Next Focus Areas / Working with

- AI/ML (Gen. Design): Non-orthogonal routes
- AI/ML (Gen. Design): 3D Equipment Layout optimisation
- AI/ML (Gen. Design): Auto-routing for HVAC and Cableways
- AI/ML (ML): Integrate ML model with generative design
- AI/ML (LLM): AI Assistant for datasheet definition
- AI/ML (LLM): AI Assistant for generating schematic drawings
- AI/ML (ML): Introduce Deep learning
- AI/ML (LLM): External agentic integration
- AI/ML (LLM): Customer documentation
- AI/ML (LLM): Multi agentic workflow

Questions?



Please wait for the microphone.
State your name and company.

Please remember to...

Navigate to this session in the
mobile app to complete the survey.

Thank you!

Sessions of Interest

Building Your Digital Twin Backbone with AVEVA Asset Information Management: Why It Matters

Thursday, May 21 @ 9:45 am

Room Brown 3 – Level 2

Transitioning to AVEVA Unified Engineering from legacy AVEVA products

Thursday, May 21 @ 9:45 am

Room Amber 5 - Level 2 - "The Hive"

System Integration with AVEVA Unified Engineering using AVEVA Integration Services and Crosser (CONNECT Flows)

Thursday, May 21 @ 09:30 am

Room L3 – Auditorium - Genius

Accelerating 3D Design with embedded Machine Learning in AVEVA Unified Engineering

Thursday, May 21 @ 10:45 am

Room L3 – Auditorium - Genius



SESSIONS &
ROUNDTABLES

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AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

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