



A Yokogawa Company



Maximus[®]

Integrated Production Modeling and Flow Assurance

Maximus[®] transforms static models into dynamic, living field insights—delivering a complete production digital twin for upstream and midstream operations.

Purpose-built for upstream and midstream oil and gas production and transport, Maximus is a leading field planning IPM (Integrated Production Modeling) and flow assurance platform. From reservoir to processing, it integrates live field data to help engineers forecast, plan, and optimize production across the life-of-field.

With unplanned downtime costing offshore operators up to USD 38 million per site, every decision counts. Maximus is your early-warning system built to detect risks, avoid disruptions, and optimize performance. Now, you can design smart, operate smarter, and produce the limit without the cost of regret capital.

Bringing
DECARBONIZATION
to Life



Bridging Models With Operations

Dated models fail to keep pace with real-world operations, which leads to missed targets, inefficient production, and unexpected downtime. Maximus closes that gap by uniting field planning and asset management into one integrated platform.

With built-in advanced thermodynamic and thermohydraulic modeling, real-time field data integration, and flow-tuning capabilities, Maximus transforms traditional simulations into a live decision-making tool. Whether evaluating complex development scenarios or monitoring operating constraints, Maximus equips teams with insights to make faster and more sustainable decisions.

Engineering the Future

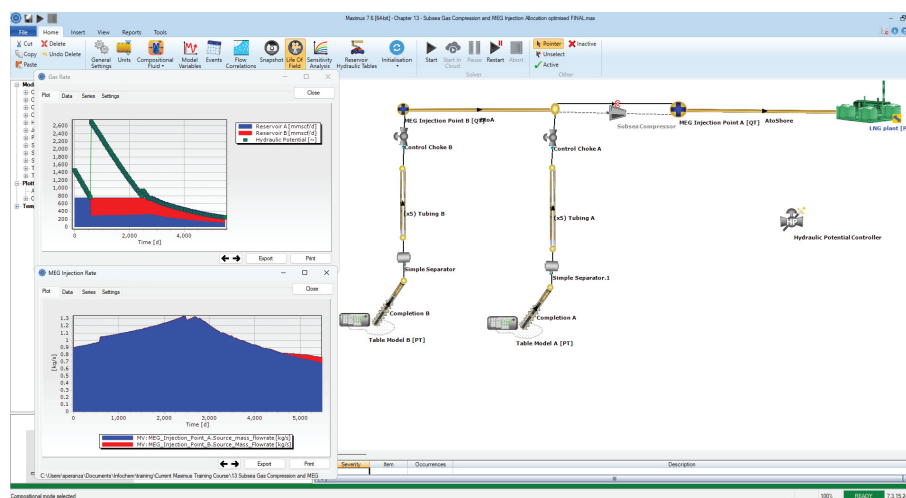
Maximus tackles real-world production challenges from flow assurance risks to operating inefficiencies across every twist and turn of the asset lifecycle. Whether you're designing a new field or optimizing a mature asset, Maximus delivers the accuracy, flexibility, and scale engineers need to succeed.

Detailed thermohydraulic modeling

With advanced flow correlations in full compositional detail, powered by Multiflash® software, Maximus predicts wax and hydrate formation and deposition rates. These insights validate and optimize chemical-injection strategies and allow testing of alternative approaches such as cold flow.

Scalable across tiebacks, subsea, and complex surface networks

Maximus compares the effectiveness of boosting techniques and evaluates both economic and environmental sustainability. The platform also optimizes gas lift injection in real time and simulates late-life production decline.



Flexible deployment with Excel automation and open interfaces

Built for openness and automation, Maximus creates and runs models via open interfaces in Excel or Python. This modeling software imports external well-performance tables and exports OLGA®/LedaFlow® tab files for transient simulation or hydraulic tables used in reservoir simulators. Equipped with a large range of production and process unit operations objects, Maximus offers field planning options using table or tank models to represent reservoirs across the life-of-field.

Field planning

Representing the entire asset—including reservoir, production, transport and processing facilities—Maximus enables life-of-field simulations leveraging production-profile tables or material-balance tank models.

Designed by engineers, for engineers

Engineered for precision, Maximus streamlines workflows and improves quality assurance. It simulates pump curves, compressor curves, surface jet pumps, electric submersible pump (ESP) curves, along with other equipment in detail.

Support the energy transition

Supporting the shift to low-carbon operations, Maximus performs end-to-end simulations—from production or capture through transport and storage—using high-accuracy physical-property models powered by Multiflash to support CCS and hydrogen scenarios.



Expanded Applications

Beyond core modeling, Maximus handles advanced upstream scenarios like:

- Optimizing chemical injection systems (MEG, TEG, DEG, methanol, xylene)
- Simulating non-Newtonian flow for polymer floods and gel injection
- Modeling wax and hydrates deposition
- Visualizing asphaltene precipitation risk
- Evaluating gas storage, export cycles, and slackline operations
- Delaying unnecessary CAPEX by modeling well/compressor logic
- Optimizing gas-lift operations and identifying risks associated with asphaltene precipitation
- Mitigating risks associated with excessive cooling/heating, phase separation and corrosion in CCS projects
- Additional scenarios include direct electrical heating (DEH), subsea compression, and liquid hydrocarbon export/offloading cycles



Ideal For

Maximus streamlines cross-disciplinary workflows and improves quality assurance throughout the asset lifecycle.

- **Field development teams** evaluate subsea tiebacks, brownfield expansions, or new production concepts
- **Flow assurance engineers** need high-fidelity models for wax, hydrate, or corrosion risk assessment
- **Asset planners** model end-of-life performance and production decline scenarios
- **Production engineers** monitor production by comparing operating scenarios to improve asset performance and meet production targets
- **Pipeline engineers** size production and transport facilities to meet production targets and identify the physical constraints of the asset
- **Consultants and integrators** require flexible, interoperable simulation environments

Why Maximus

Maximus brings clarity to complexity. It offers engineers a trusted co-pilot in navigating the ever-shifting terrain of production flow assurance. The following core capabilities of Maximus are designed to support every phase of the asset lifecycle for Bringing Decarbonization to Life®.

Market Problems	Product Features
Advanced Well Model	
Well design and operational plans are often misaligned with actual field conditions.	Validates actual well performance against design and operational targets to optimize decisions.
Flow Tuning	
Static flow correlation parameters lead to inaccurate predictions, increasing flow assurance risks.	Automatically adjusts flow parameters using field data to improve prediction accuracy and reduce risks.
VLP Import	
Well performance data is often locked in external systems, making integration time-consuming.	Imports external performance curves for seamless integration with Maximus modeling workflows.
CCS and Hydrogen Production and Transport	
Accurate modeling of CCS and hydrogen systems is difficult with conventional simulation tools.	Enhances thermodynamic models and property data for more reliable CCS and hydrogen simulations.
Caltec Subsea Jet Pump	
Low-pressure wells struggle with high back-pressure, reducing production efficiency.	Enables advanced modeling and simulation of jet pumps to boost flow and reduce energy use and carbons emissions
Lifecycle Planning Options	
Static models are difficult to scale across the life of field, which makes it hard to evaluate development, CAPEX phasing, and end-of-life strategies.	Reduces CAPEX/OPEX through better concept evaluation, risk mitigation, and planning across the life-of-field.
Excel/Python Open Interface Integration and Cloud	
Many tools are closed systems that limit customization and require redundant data entry across platforms, which hinders workflows and increases errors.	Empowers engineers to work efficiently with existing tools to reduce the learning curve and setup time. The standard open interface, on premise or cloud, allows automatic execution of workflows and integrates seamlessly with Petro-SIM®, OLGA, Leda Flow, and other third-party tools for end-to-end workflows.

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