Workgroup Modelling using InfoWorks WS Pro

Who should be considering it and why

2019 Annual Brisbane User Event
# Core Modelling for Water Distribution

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## InfoWater (Pro)
- Optimal solution for modelling inside ESRI
- Modelling data held within the asset registry
- Familiar ESRI UI for non-modelers
- Small/medium utility

## InfoWorks WS Pro
- Workgroup platform
- Accurate demand, pump and valve operations
- Scripted automation processes
- Path to Live Modelling
- Large/major utility

## IWLive Pro
- Workgroup platform
- Recommended underlying InfoWorks WS Pro model
- Operational model both predictive and reactive
- Advanced utilities
Why InfoWorks WS Pro?

- Workgroup Platform
- Corporate Integration
- Accurate Modelling
- Rich built-in tools
- Cutting-edge technology
- Global Offering
- Live Modelling
Workgroup benefits at a glance

Give multiple people access to your models
- **Single, centralized**, and multi-use database
- Allows **multiple people** to edit the same object simultaneously, and commit changes

Keep track of all the changes over time
- Model objects are **version-controlled**
- **Commit history** to keep track of the changes in the model objects
- Identifies and prompt the user to **resolve conflicts** between changes to objects committed by different users
Workgroup benefits at a glance

Maximise productivity in your team
- Workgroup database which is designed to provide the **best performance** with the **minimal configuration**
- User permissions to assign **varying levels of rights** to other users

Maintain data integrity and its source
- **Data flags** for every model information allowing the user to record the source and integrity of data
- Data imported in the model can be **tracked, audited, interpreted and manipulated** more quickly and easily
## Workgroup benefits at a glance

<table>
<thead>
<tr>
<th>Workgroup Database Storage</th>
<th>Non-Workgroup file-based system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data can be referenced to only show the portion of the dataset</td>
<td>Entire data file needs to be loaded into memory before display</td>
</tr>
<tr>
<td>needed for display</td>
<td></td>
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<tr>
<td>Database can be interpreted using smarter table and lookup</td>
<td>Full file is often accessed sequentially from memory so operations</td>
</tr>
<tr>
<td>commands, so operations can be faster</td>
<td>can be slower</td>
</tr>
<tr>
<td>Increased data size, similar performance</td>
<td>Increased data size, decreased performance</td>
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<tr>
<td>No performance issues for large models</td>
<td>Performance degradation for large models</td>
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<tr>
<td>No theoretical size limits</td>
<td>Limitations in maximum file sizes</td>
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<tr>
<td>Multi-user Editing</td>
<td>Single User Editing</td>
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Corporate integration

Extensive GIS Connectivity

- Allows **exchange of data** between the model and external GIS in multiple formats
- Allows **automated exchange** of data between the database and third-party applications
- Web Mapping Service (WMS) support in addition to built-in MapXtreme or ArcGIS desktop/engine support

Connect directly to external telemetry

- Update **boundary conditions** and allow comparison of **actual vs predicted** values
- Leverage connection to telemetry to perform **demand area analysis**, roughness **calibration** and **leakage locator** simulations
- Direct connection to many types of telemetry databases including **SQL Server**, **Oracle**, **PI**, **ClearSCADA**, **Info360**
Accurate modelling

Complete (all-mains) model can be accurately represented within a single model. **Speed** is optimized to allow models of 100,000 or more pipes to be built, edited and run

- **Explicit** modelling of network assets (e.g. hydrants, meters, customer connections)
- Ability to model **open channels** using time dependant equations (de Saint Venant)
- Realistic modelling of controls (e.g. control valves and variable speed pumps)
- Realistic demand modelling – including pressure-related demand, drain down and recharge
- Customer-centric: comprehensive service-level reporting at customer points
Rich array of built-in tools

Built-in spatial analysis and visualization tools allow users the ability to perform more advanced analysis and facilitate model maintenance.

Effectively edit your data
Implements its own Structured Query Language (SQL) for selecting and updating network object using specified criteria.

Don’t worry about mistakes
Undo/Redo functionality available in addition to the Commit History functionality (keeps track of all transactions).

Missing data on your GIS?
Missing network values can be inferred from existing data, allowing the user to fill in data gaps (flags can be used to mark inference source).

Understand system layout
Includes multiple tracing tools, including upstream & downstream, boundary, connectivity, proximity and isolation trace.

Perform many analysis

On the fly data validation
Validation used to ensure that model information is consistent with expected engineering values.
Cutting-edge technology

Industry leading technology development: InfoWorks WS Pro supports the running of hydraulic simulations within workgroup system utilizing dedicated servers and central storage.

Optimise resource usage
Model simulations can be **distributed** across a pool of remote agents to take maximum advantage of those resources.

New scenarios of modelling
Allows development of **composite runs**: standard simulation can be run many times with one or two values modified each time.

Share results within the team
Results can be **saved on a central server** to be available to other users within the modelling team.
Global offering

Dual-engine option available to accommodate the needs of all different markets: InfoWorks WS Pro native engine alongside with the InfoWater (EPANET) engine

InfoWorks WS Pro (Regular)
Combines the power of cutting-edge technology to properly model pipes, valves, pumps using a proprietary hydraulic engine, widely respected for its stability and reliability, especially in handling large distribution networks.

InfoWorks WS Pro EPEng
 Adds the standard InfoWater (EPANET) engine to its own proprietary engine, so that users can choose between the two based on specific project requirements.

Easy model conversion
Model conversion between InfoWater, InfoWorks WS Pro (both engine options) is performed with an XINP (eXtended INP) file, which accounts for all type of controls.
How to convert my models?

Dual engine option available:

**InfoWorks WS Pro EPEng** integrates the InfoWater engine to ensure a perfect match in results between the two platforms.

**InfoWorks WS Pro (Regular)** is based on a proprietary engine to increase stability and performance.

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**InfoWorks WS Pro EPEng**

Straightforward model conversion: effectively running the same model, with the same engine, on a different platform.

**InfoWater**

Q/A required on converted models: occasionally, some controls might be missing requiring some small changes on the converted model.

**InfoWorks WS Pro**
Open the doors for Live Modelling

Live models are powerful support tools which ensure the right decisions are made.

Support network operations
Accurate and up-to-date models continually validated by live data means that the end-user can trust the model’s predictions and share the operational knowledge across the whole utility.

Real-time alert system
Real-time comparison between predicted and observed data with user-defined warning generation in case of deviation from telemetry (verification) or thresholds (simulation).

Predict future behaviour of your system
‘Projection run’ is constantly performed by updating calibrated hydraulic models from telemetry and using demand forecast to drive modelling predictions based on actual network operating conditions.

Evidence led decision making on incident management
Supports the definition of optimal responses through analysing ‘what-if’ scenarios.
Who should be using InfoWorks WS Pro?

InfoWorks WS Pro is your best modelling solution if you meet two or more of the following criteria:

- Large to major utility
- Have multiple modellers in the team
- Work with large networks (≥ 100k pipes)
- Are an advanced user – i.e. are interested in exploring scripting to automate model (network) update and maintenance
- Have an interest in Live Modelling (the use of hydraulic models to support network operations)
Questions?