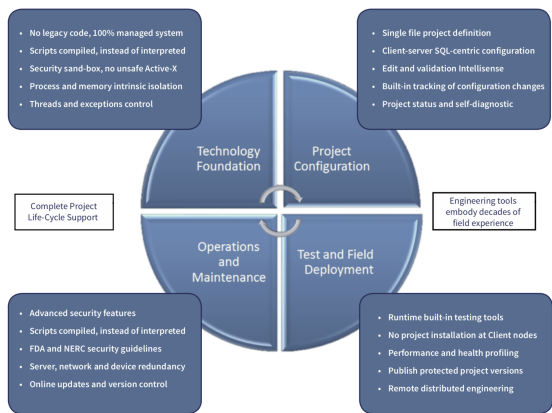# Tools for Diagnostics

FactoryStudio has a complete set of tools to assist the development, tests and diagnostics, and commissioning your projects to field installation.

- No legacy code, 100% managed system
- Scripts compiled, instead of interpreted
- Security sand-box, no unsafe Active-X
- Process and memory intrinsic isolation
- Threads and exceptions control

- Single file project definition
- Client-server SQL-centric configuration
- Edit and validation Intellisense
- Built-in tracking of configuration changes
- Project status and self-diagnostic

Technology Foundation

Project Configuration

Complete Project Life-Cycle Support

Engineering tools embody decades of field experience

Operations and Maintenance

Test and Field Deployment

- Advanced security features
- Scripts compiled, instead of interpreted
- FDA and NERC security guidelines
- Server, network and device redundancy
- Online updates and version control

- Runtime built-in testing tools
- No project installation at Client nodes
- Performance and health profiling
- Publish protected project versions
- Remote distributed engineering

Technology Foundation

A solid foundation is a requirement to achieve operational stability. FactoryStudio was designed carefully selecting secure, efficient, flexible and modern established technologies, carrying no legacy undesirable baggage.

Project Configuration

In projects created with tools from previous generations, many field errors result from undetected configuration errors. FactoryStudio added many features targeting consistency checks and complete configuration verification in the engineering environment, instead of the run-try-and-fail from the past.

Test and Field Deployment

Potential errors and famous SCADA viruses, such as Stuxnet, were due to deployment security breaches. FactoryStudio's design includes specific features to simplify and secure the field deployment.

Maintenance and Operations

Operational stability, the number one requirement of most automation systems, is based on a chain that embraces the complete project life cycle: the Selection of Technologies, Project Configuration, Test and Field Deployment, Operations and Maintenance.

ⓘ **Track Project Changes**

- Each configuration row has the date created and modified.

- A summary view of all tables' changes and sizes is available.

- Build commands can create project labels and save partial versions.

- Publish command creates runtime-only projects with release version control.

- FactoryStudio automatically logs who changed what, in all project configuration objects