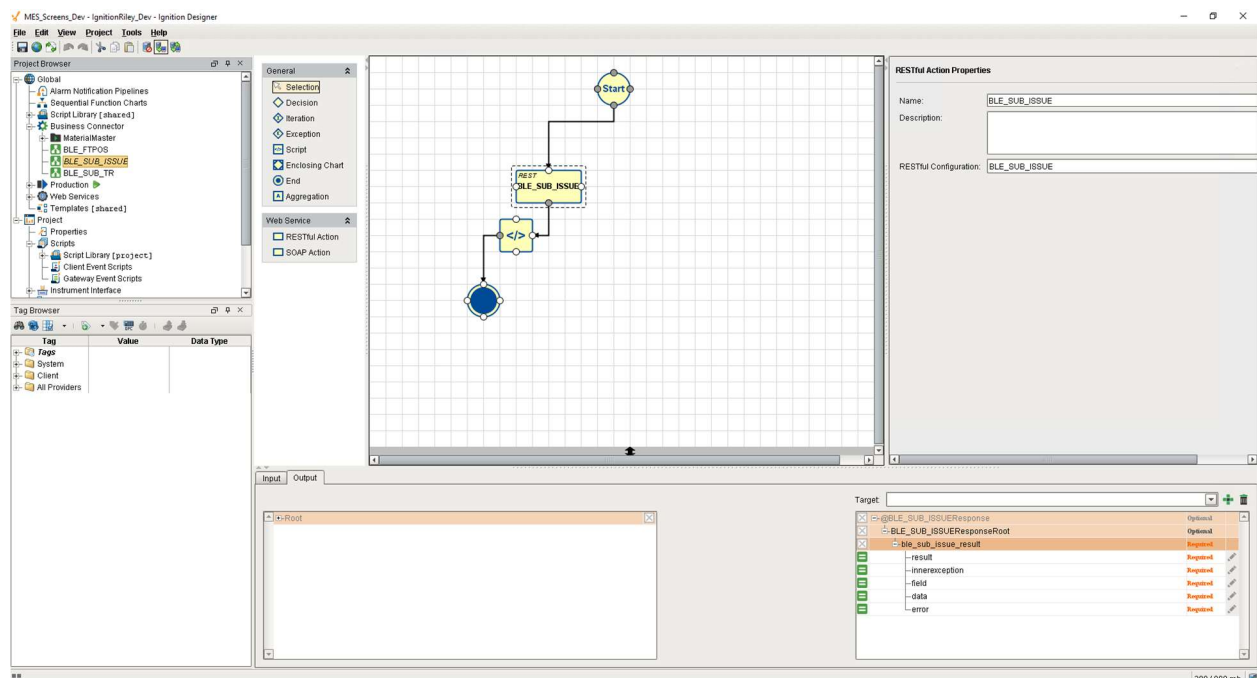




**Updating Operations with Grantek:**  
*Converting Outdated Legacy Middleware  
into Ignition by Inductive Automation®*

An obstacle many manufacturing facilities face is the risk and cost associated with maintaining legacy middleware in the plant. These systems, sometimes custom-built and often utilizing obsolete platforms, restrict a facility's ability to maximize use of available information and present a risk to production in the event that they can no longer be maintained, or fail.

As a leading manufacturing integrator, Grantek is often involved with projects requiring the upgrade or replacement of legacy middleware systems for our customers. Grantek holds the rare Premier Integrator and Enterprise Integrator distinctions with Inductive Automation due to our strong thought leadership and repeatable methodology for delivering successful projects built on the Ignition platform. Our team includes dozens of engineers across North America who are trained and certified in Ignition and the accompanying MES modules by Sepasoft. As a result of this close relationship with Inductive Automation, we can help if it is time to replace outdated middleware applications that may be hindering a facility's profitability.



Legacy middleware may be a common but no-longer-supported tool such as SQL Server 2000, Microsoft Access, or even a homegrown application purpose-built in-house. Though these applications are still functioning, their support costs will continue to grow as the products age, and the skills needed to maintain homebuilt systems may no longer exist as staff turns over. In all of these situations, Grantek offers advantages over other integrators as a result of our close ties with Inductive Automation as well as our broad software experience as facility integrators.

Grantek is expert at designing and implementing Supervisory Control and Data Acquisition (SCADA) systems that can use Ignition products to replace the obsolete middleware a facility may be using, and at the same time enhance the capabilities of the data acquisition system to turn it into more usable input for intelligent data analysis throughout the facility or even company-wide.

Grantek may find some homegrown glue code in the course of performing an upgrade to some other part of a customer's system, usually in the course of doing a MES project for a customer. Grantek's broad experience as a systems integrator enables us to recreate the legacy functionality using Ignition, which comes out of the box with the capability to interface with most existing machine-level data without requiring hardware upgrades at the machine. Ignition provides connections for most PLCs and HMIs and allows a data collection system to be built very quickly that can replace the legacy middleware and offer more usable data at the same time.

## **What is Ignition?**

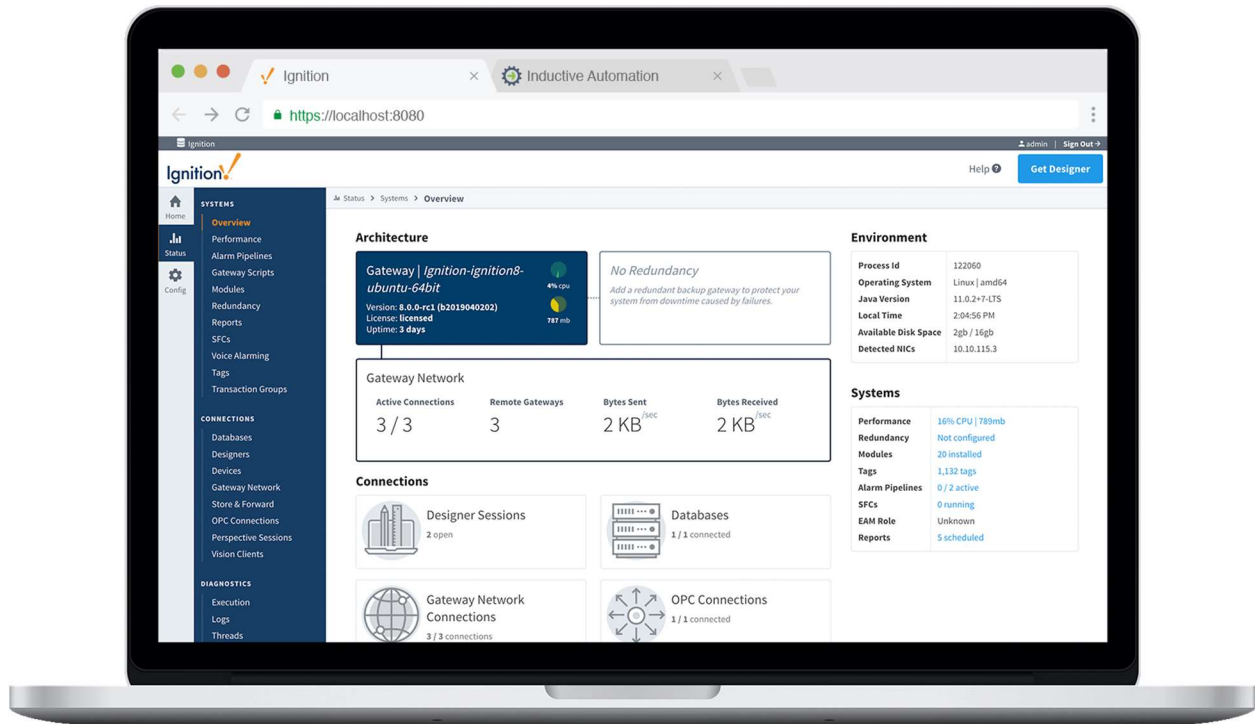
Ignition by Inductive Automation® is a SCADA package from Inductive Automation with a very broad range of capabilities and built-in functions. The visual aspect is already built in – there is no longer a need to handcraft graphical user interfaces (GUIs) and graphics. It also provides SCADA control, interconnecting directly with plant hardware.

Ignition server software acts as the hub for everything on the plant floor for total system integration. No matter what brand, model, or platform, Ignition can communicate with plant-floor equipment as well as a facility's SQL databases, seamlessly bridging the gap between production and IT.

Unlike older systems that required extensive customized programming, Ignition can be readily used with data systems, manufacturing execution systems (MES) and provides data for overall equipment effectiveness (OEE) tracking- it interacts directly with the database to provide inputs from the plant floor to the business side.

Ignition can replace most legacy applications without the need to replace Ethernet-compatible input devices. Ignition offers modules that can connect to just about anything, generally right out of the box.

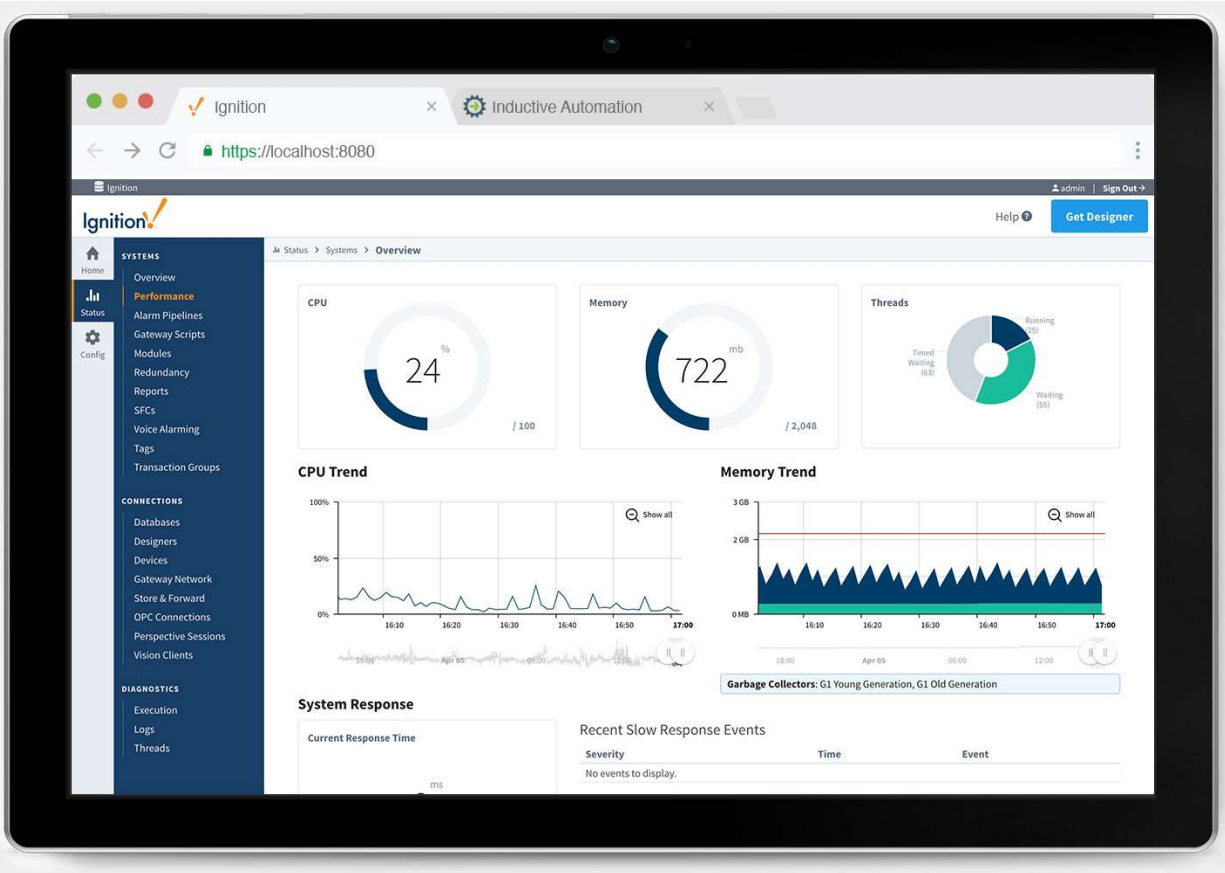
Advantages realized by replacing legacy middleware with Ignition include eliminating the possibility of old applications crashing, adversely affecting production and potentially resulting in data loss. Efficiencies may be achieved by removing dependency on middleware apps that no longer meet corporate objectives or are causing performance that is not optimal. Grantek may suggest that a customer upgrade because Ignition is easier to maintain than a legacy application reliant on the specialized knowledge of one or two key staff members.



If a device is already on a facility's network, Ignition can probably talk to it. There are modules available for most PLCs and other devices from industry-leading manufacturers. Custom work may be needed for something like a locally-programmed human-machine interface (HMI) that is not already communicating on the facility network. Grantek can upgrade such devices to add them to the network. Ignition communicates with many database types and many PLC manufacturers.

Ignition is hosted on its own server, managed by the company's IT department. The Ignition server is the interface from the plant equipment to the database server. Ignition easily handles multiple users launching the client simultaneously.

Generally, the customer provides a standard Windows server as the Ignition server at the plant. However, the server and database may also be configured at a central company location and multiple sites may be granted access. The Ignition server resides on the plant's control network and is managed by the company's IT department.



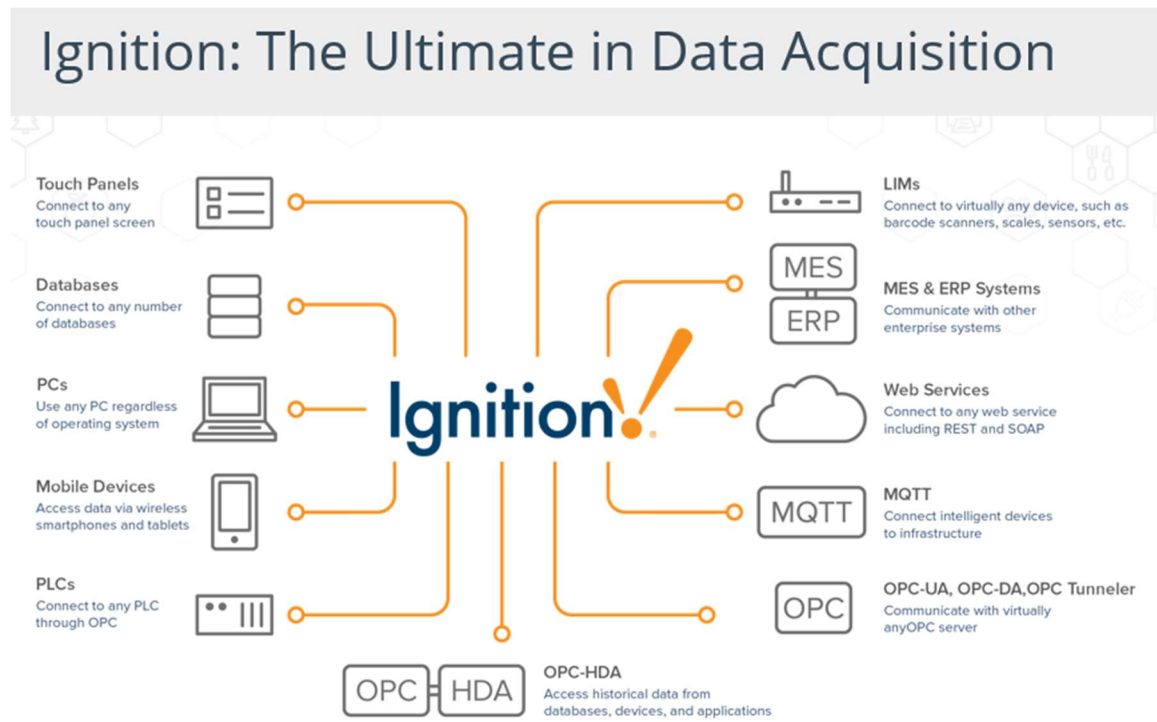
Customers may create a firewall rule to provide access to the business network if required, such as for reporting capabilities. Ignition can be easily configured to generate many types of reports and email them to recipients as required, eliminating the need to connect the plant network to the business network. This reduces the risk of security breaches by helping to isolate the control network from potential intrusions from outside the company. Reporting is extremely customizable – Ignition can provide whatever data is desired, and can send it to whoever needs it, while maintaining the separation between business and control networks.

## Why Call Grantek?

Grantek helps manufacturers transition to Ignition by offering Ignition expertise and experience with legacy systems that is typically not available onsite. Staff members who may have created and installed a middleware product originally may have transitioned to other roles or left the company, or may not have the time to keep maintaining obsolete systems or to effectively upgrade them.

Legacy middleware replacement can be performed as a standalone project or as part of a wider system expansion or manufacturing upgrade. Grantek can help determine if it is cost-effective to migrate to Ignition as part of another project and can help assess risks associated with continuing to try to make the legacy system work. Upgrading to Ignition as part of another project may reduce the risk of unexpected problems arising from incompatibility of legacy middleware with new equipment. Grantek

encourages customers to ask about upgrading their legacy middleware whenever they are contemplating other manufacturing expansion projects, because it may be less costly in the long run to upgrade before a legacy system just won't work anymore.



When the Operations Group at a manufacturing facility is looking at MES software upgrades, it may be an opportune time to replace legacy middleware as well, because it is often a frustration point when maintaining MES or making other enterprise resource planning (ERP) upgrades or changes, as there are often communication issues when dealing with legacy systems. Any time a facility needs to move data from the production floor to the business office side, an Ignition solution would help.

Plant management personnel at a local plant or higher level will often be aware of an app they have to use that they wish was better. In many cases Ignition can replace one or more legacy apps with an elegant end-to-end solution that meets the needs of all users. However, Grantek's expertise may be needed to map the functions of a legacy app or homegrown HMI to the Ignition language for optimal performance.

Limitations of legacy systems, such as obsolete libraries, can be eliminated by upgrading to Ignition, which is far easier to maintain than legacy products such as Visual Basic.

For sites where Grantek has done work in the past, knowledge of the legacy systems enables recommendations for proactive upgrades before system obsolescence starts causing problems. A phased approach is a common strategy for Grantek's customers to take; it allows customers to spread the costs and reduce the risk of replacing everything at once.

Obsolete middleware may be the result of a homegrown application created by technical personnel at the facility, potentially causing a situation where those who were knowledgeable about the system are no longer available to maintain it.

In some cases, an application may have been installed by another integration company five to ten years ago, but it now needs to be upgraded and no one on staff knows how to do it.

In other situations, standards have changed and legacy applications in use are no longer compliant. Ignition works hand-in-hand with current MES systems and is much easier to integrate with MES than old legacy applications.

Grantek can help provide an upgrade path and design and install an Ignition-based solution for all of these situations.

## **Grantek's Methodology**

To do a thorough analysis and properly scope a transition to Ignition, whether as a standalone project or as part of a concurrent system project, Grantek follows a proven methodology.

- Identification of old software is the first step. This may come up during a planned project or Grantek may suggest it. Customers who are used to working with and supporting legacy systems may have issues they have learned to just accept. Grantek may suggest an upgrade to Ignition in order to reduce the time needed for maintaining an old system and also to increase the capabilities for data monitoring by implementing a more versatile Ignition system.
- Grantek requests that the customer provide a copy of their legacy middleware applications and associated database, and steps through it with the customer to understand what the customer needs the new system to do. Old middleware, especially any custom-designed applications, may pose challenges, so Grantek performs a full investigation in order to determine how best to achieve the same or improved functionality using Ignition.
- Grantek software engineers set up their own copy of the system and perform a deep dive to fully assess the functions being performed, the GUI capabilities as well as its look and feel, linkages to the plant equipment, and any reporting requirements that need to be maintained. Button placement, naming conventions, and other aspects of the user interface can be designed to be similar to the legacy system, if that is the customer preference. One aspect of the deep dive is to investigate the functionality for each area of the user screens and replicate it in Ignition to give the customer the same functionality they had, presented in a way that will be familiar to the operators.
- A project plan and associated cost estimates are then developed based on the discoveries of the deep dive. Project duration generally depends on the size of the project.
- Next, Grantek designs and builds a new system using Ignition. Ignition is a powerful tool that manipulates the database based on plant data and creates reports. Design specifications may be developed based on customer-provided specifications, or Grantek can generate the specifications based on customer needs and functionality of the system being replaced.



- Grantek customizes Ignition to recreate and enhance the functionality of the legacy system, maximizing usage of built-in Ignition functionality. Ignition interfaces directly to the PLCs and sensors.
- Often legacy apps looked at data and the user made a decision based on the data. Ignition also has this capability, typically more efficiently than the middleware. Some legacy databases have custom-built GUIs with a database stored locally on a shared drive. This setup may not be efficient when multiple users try to access it.
- If the customer wants the new system to retain the look and feel of the old system, in order to shorten the learning curve for the machine operators, Grantek develops a GUI that is similar to the old system, but with the back end designed in the most efficient way possible.
- A user manual is provided for the new system, structured to help the operator quickly learn how to use the new system to perform the same kinds of tasks they are used to performing on the legacy system. Part of the process is to document what the legacy system did and reverse-engineer a manual for the old system, then create a new user guide to quickly train users how to use the new system based on the tasks they are already familiar with. Induction Automation also has many free training classes and resources on their website.
- Qualification testing depends on customer needs and regulatory requirements. Grantek will generate a test plan that shows what the old system did and describes what the new system does in order to check that all functions work as the customer specified. Grantek generally performs functional acceptance testing (FAT) in-house on Grantek's system to ensure everything works as expected before installation at the customer's location. Onsite testing is done in accordance with customer requirements.

## **Benefits of Engaging Grantek to move to Ignition**

Grantek's project experience has taught us that Ignition provides measurable benefits when it is time to replace legacy middleware.

If your company is looking to upgrade software that interacts between the plant control network and the business network, Grantek can help implement an Ignition system that simplifies the process for utilizing plant data as source for business reports. Ignition can work from the plant floor all the way up to the ERP level – Ignition provides connectors to the MES space of truly central network data and can deliver it to the business side as well.

Ignition is an affordable product that offers scalability to pave the way for future expansion. The server software is a one-time purchase, and the modules needed to communicate to the tags and build the GUI are purchased as needed, distributing costs over time. Grantek can design an efficient replacement for your legacy systems using off-the-shelf Ignition components, minimizing the customization required.

There is no limit to the number of users for the Ignition software, no time limit, and no limit on the number of screens that can be connected. The number of monitoring points ("tags") for physical hardware on the plant floor is also unlimited. Ignition is not subscription-based, nor are there feature



tiers. This makes it more affordable than other options. Inductive Automation also provides many training resources on their website at no cost.

Another advantage of implementing Ignition is that it can communicate with legacy, no longer in support, databases. This allows Grantek to configure Ignition to function as a stopgap for facilities that may not have the time or the means to perform a complete upgrade, yet want the capability to keep an old database functional until a complete upgrade is feasible.

For companies involved in acquisitions, there may be unknown or outdated applications that may be incompatible with the rest of the company. Grantek can assess these and work to integrate them to comply with the requirements of the rest of the company.

If your company seeks to replace homegrown, hard-to-maintain, or piecemeal systems providing manufacturing system data monitoring, contact Grantek for suggestions on moving to Ignition. Instead of running the risk of a costly crash of a legacy application, it may be time to investigate the options for replacing it with an Ignition system integrated by Grantek.

*For over 40 years, top manufacturers in Food & Beverage, CPG and Life Sciences/Pharmaceuticals have called upon Grantek to solve their most complex business and manufacturing challenges. Grantek automates Pharmaceutical and Food & Beverage manufacturing operations, including integration with business systems for seamless solutions. Grantek helps customers meet the stringent requirements and challenges of the 4<sup>th</sup> Industrial Revolution. Grantek is a system integrator and solution provider with a specialization in Smart Manufacturing solutions, Manufacturing Automation solutions, Industrial IT/Cybersecurity solutions and Manufacturing Consulting services. Call 1.866.936.9509 or email [info@grantek.com](mailto:info@grantek.com) to learn more.*