

Ignition 8.1 User Manual — Welcome, Getting Started and Other Editions

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Welcome



About this Manual

This Welcome section provides a **broad overview** and information relating to **modules**, **architectures**, **installation**, and an **Upgrade Guide**. The sidebar on the left is a table of contents organized so you can navigate easily and quickly through Ignition's features, modules, functions, and so forth.

In the **Appendix** you'll find an exhaustive list of all the **Components**, **Expressions**, and **Scripting Functions** in Ignition.

Take a look at the navigation section on the left and poke around.

Ignition 8.1

This User Manual is specifically for Ignition 8.1. Other major versions of the software have separate User Manuals. The manual version you are viewing can be adjusted by selecting a different version in the top navigation bar version dropdown.

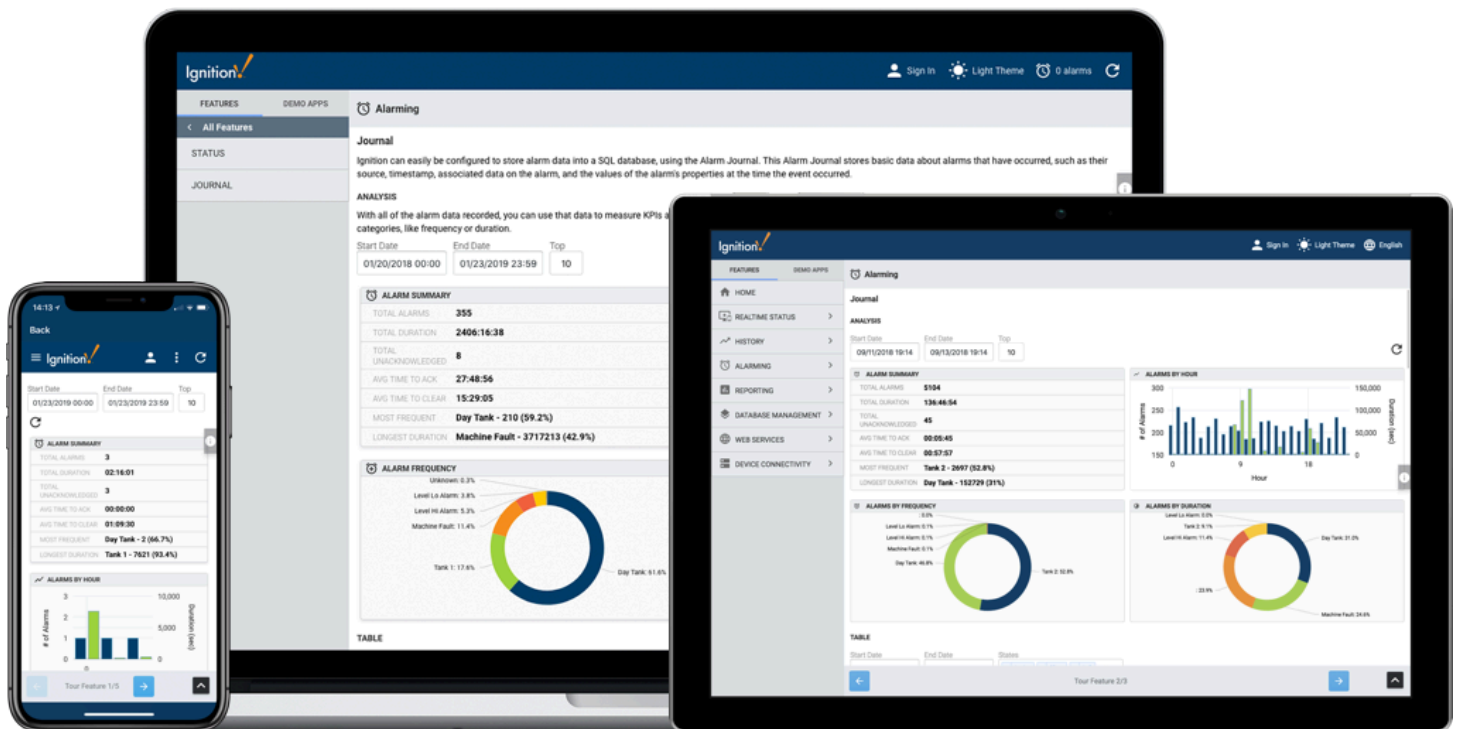
Security Portal

Stay up-to-date on all Ignition security news by subscribing to our **Trust Center** updates.

Vulnerability Reporting If you'd like to report a vulnerability, let us know through our **security@inductiveautomation.com** address. Additionally, Inductive Automation provides a **public PGP key** if encrypted communication is needed.

Inductive University

Inductive University is a free online learning platform designed to help you master Ignition. You can watch hundreds of training videos and participate in our credential program to test your knowledge. It's the first step to joining our ranks of Certified Integrators.



Ignition Basics

Ignition is completely different from what you are used to using. See what Ignition is and some of the many things it can do for you. Learn the basics and how it can work for you.

Introducing Ignition

Startup Guide

New to Ignition? Get started by getting Ignition running on your computer in minutes with our Startup Guide. Download Ignition and evaluate the full version right away.

Startup Guide

Installing and Upgrading

You can install Ignition in under 3 minutes; staying current is just as easy. No hassles, no secret handshakes, only one lightweight install and you can have clients running everywhere.

System Architectures

Ignition can support many different types of architectures from single standalone systems to vast enterprise level structures. Learn about the types of architectures and how they work.

System Architectures

New in this Version

Are you looking for something that has changed? Or maybe you want to see the things we have been adding to Ignition? Check out the New in this Version page for a list of improvements for each version.

New in this Version

Partner Programs

Inductive Automation is proud to have a Partner Program that allows others to create modules to enhance Ignition's functionality. You can learn more about [Sepasoft's MES modules](#) and [Cirrus Link's MQTT modules](#) here.

SDK Documentation

Documentation for the [Ignition Module SDK](#). Anyone looking to create a new module should start here.

! INFO

Custom module development is intended for use with Standard Ignition. If custom modules are needed for other editions of Ignition, such as Ignition Cloud Edition, Ignition Edge, or Ignition Maker Edition, customers can reach out to [Inductive Automation](#) to discuss exceptions on a case-by-case basis.

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Getting Started

Introducing Ignition

Ignition SCADA by Inductive Automation® combines an unlimited licensing model with instant web-based deploy...

Modules Overview

Startup Guide

Installing and Upgrading Ignition

Perspective and Vision - Which Visualization System is Best for Me?

Ignition's Perspective Module and the Vision Module each enable you to rapidly develop industrial applications fo...

Introducing Ignition

What is Ignition?



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What is Ignition?

[Watch the video](#)

Ignition by Inductive Automation® combines an unlimited licensing model with instant web-based deployment and the industry-leading toolset for supervisory control and data acquisition (SCADA), all on one open and scalable universal platform. Ignition is "The New SCADA" because it solves all the major pain points of old SCADA. Ignition empowers your business to easily control your processes to track, display, and analyze data, without limits. Ignition is designed to be approachable and easy to get started with, while being flexible and capable of scaling up to the largest projects. Ignition is unlimited; for the low cost of one server license, you can connect all your data, design any kind of industrial application, and instantly deploy web-based unlimited Clients and Sessions to anyone or anywhere, all from one universal platform.

The features below are core to Ignition.



Server-Based: One computer controls everything in Ignition. You install a server in one place and connect everything else to that server. With this feature, you can have as many **Client** runtimes, **Sessions**, and **Designers** as you want.



Simple Licensing: Only one **license** for your server is required. This gives you unlimited access to various features such as unlimited Clients, Sessions, **tags**, and **projects**. Without limits on these resources, you can exchange important data and analytics with your entire team, and across your whole company. Ignition allows you to create and use as many tags as you need for different purposes like **devices**, **OPC servers**, and runtimes.



Web-Based Deployment: Ignition is installed, deployed, and managed using standard web technologies. You can connect from any computer on the network to perform actions like managing settings, updating projects, creating new tags, and launching new runtimes.



Designers, Clients, and Sessions: You can download the **Designer Launcher** to make changes to your projects, the **Vision Client Launcher** to launch Clients, and **Perspective Workstation** to launch Sessions. Alternatively, you can create deep links for each type of launcher pointing towards specified projects. Any of these options can be set up on any system in your network, giving you and your users access to Ignition from anywhere your network extends. In initial benchmark testing, Ignition Perspective can simultaneously and easily launch 200 Sessions.



Built-in Security: Security is built into every aspect of Ignition. You can **manage users**, edit screen permissions at the individual **tag** or component level for both **Vision** and **Perspective**, and even secure certain assets in your projects.



Scalable Modular Architecture: You can create a scalable and centrally managed SCADA system using Ignition's web-based server architecture. Configure unlimited connections to PLCs, databases, and web-launched runtimes, along with web-based deployment, and different types of **System Architectures** to suit your needs. Projects can initially be created small and expanded out indefinitely as your business grows, or you can have smaller installations connected to and interacting with other larger systems.



Cross-Platform: Ignition is built on Java and runs on Windows, macOS, and Linux. Perspective Sessions can be accessed from browsers on iOS and Android devices. **Backups** of your system are also cross-platform, allowing you to load a backup from any system.

New in This Release

- Ignition 8 features a new poll-free protocol that updates tag data instantly for both Vision and Perspective clients. As a result, Vision clients in Ignition 8 are drastically faster while using dramatically less CPU power.
- For the new Vision Module, we've created new native Vision client launchers for Windows, Mac, and Linux, so you can easily launch Vision clients on any major operating system without needing to install and update Java.
- Ignition Vision is perfect for dedicated plant-floor displays and HMIs, while Ignition Perspective is perfect for mobile-first industrial applications. You can use them on their own or together to form the industry's most powerful, cutting-edge visualization system.
- Vision client screens will look even better in Ignition 8, thanks to a new design and new support for high-resolution displays.
- Fonts have also been improved with more choices and better rendering so your screens look sharper than ever.
- Ignition 8 has an improved concurrent editing system which allows multiple people to work on the same project at the same time without locking each other out of resources. This will help your team work faster and more collaboratively.
- In Ignition Perspective, you can use powerful and flexible CSS3 styles to change the appearance and position of anything in your application. By combining styles into themes, you'll be able to apply and edit styles across multiple applications in an instant.

For a full list of new features, see the [New in this Version](#) page.



Web-Based
Deployment



Unlimited
Licensing



Security
& Stability



Real-Time Control
& Monitoring



Rapid
Development



Expandability
and Scalability

What Can Ignition Do?

Because of its modular nature, Ignition can be customized to your needs. A lot of the basic functionality is shared between modules and stored in the Gateway to make everything smooth and seamless. Some of these basic functionalities include database connections, device connections, tags, security profiles, and alarming. Because these are all shared resources, you don't have to manage multiple connections for the different modules in Ignition. Ignition's modular platform also supports your requirements by allowing you to select the modules you need and build processes suited for your business. You do not need to pay for any modules you do not want.

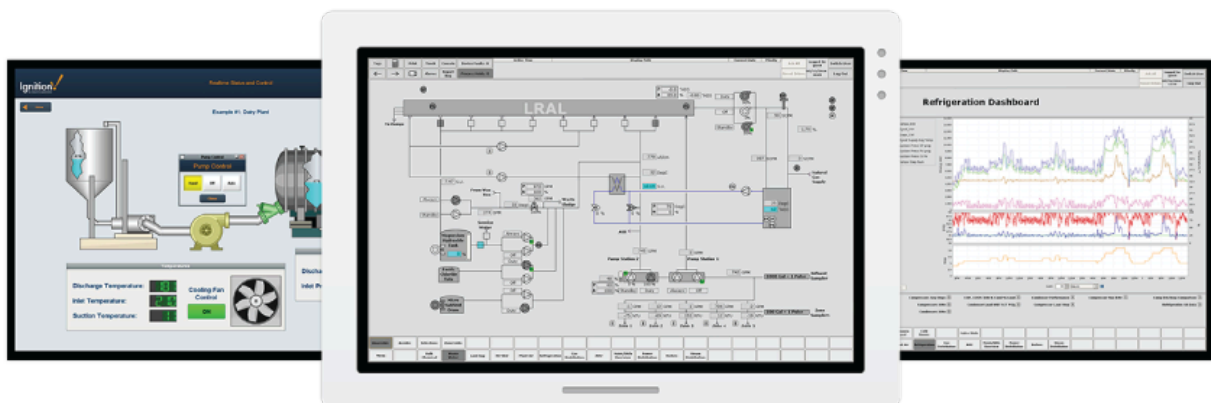
Using Ignition, you can build projects like **database** applications, point of sale (POS) systems, customer relationship management (CRM) tools, and inventory tracking software. Additionally, you can bring in data from any SQL database in your plant and interact with other existing enterprise resource planning (ERP) software and Access systems.

See the sections below to learn more about how Ignition utilizes all of these available tools for some inspiration of what's possible.

Web-Based HMI and SCADA Applications Deployment

Using web technologies, you can access programmable logic controllers (PLCs) and connect to SQL databases on any platform. Ignition provides common HMI/SCADA capabilities easily and efficiently by allowing you to:

- Create Clients and Sessions that show current or past data
- Interact with your other systems and devices
- Create displays and controls for anything wired into your system
- See and manage your entire system from one place



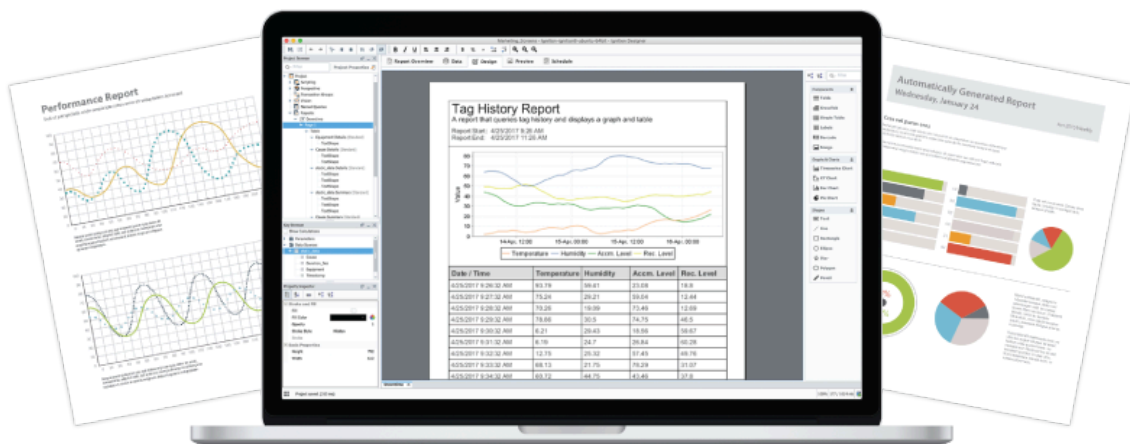
High-Performance Historian

You can use any SQL database with Ignition's **Tag Historian** module. In addition to being simple to set up, Ignition will record and manage the data for you. The historian includes partitioning and uses compression algorithms for fast data storage and retrieval.



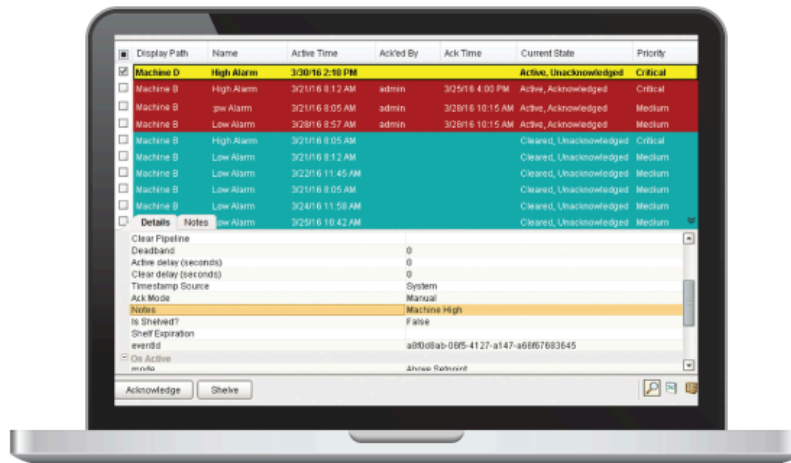
Reporting Engine

You can **create dynamic PDF reports** that users can see and change anytime. This can be automated by creating a schedule during which documents such as analytical data or compliance reports can be generated or emailed out. Your users can change date ranges on any reports you create or select past reports without any changes to the system.



Alarming

You can use Ignition's alarming engine to **create alarms** for any conditions. Alarms can be shelved, recorded, acknowledged, or handled through notifications and messaging. Email, standard text messages (SMS), and voice messages can be sent to individuals or lists of users based on any logic you need.



Communications Hub

You can use Ignition as an effective communication hub in your network. You can use some or all of these features to make Ignition move data back and forth throughout your facility. Connect everything together with:

- OPC-based communication to interact with almost **any OPC server**
- **SQL-based** JDBC drivers to connect to any number of databases
- Built-in **PLC drivers** to connect to any PLC (such as Allen-Bradley, Siemens, Modbus) through OPC
- Web services to support launching anywhere
- System compatibility with **other enterprise systems** (ERP)
- **Connections to devices**, such as barcode scanners, scales, and sensors
- Connections to any mobile device, such as wireless smartphones and tablets
- Connections to any touch panel screen or human machine interface (HMI)

Touch Panels

Connect to any touch panel screen

Databases

Connect to any number of databases

PCs

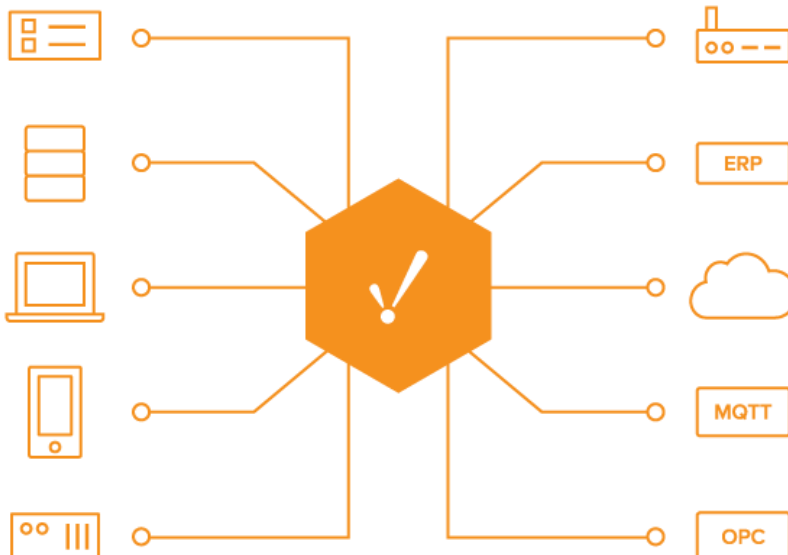
Use any PC regardless of operating system

Mobile Devices

Access data via wireless smartphones and tablets

PLCs

Connect to any PLC through OPC



LIMs

Connect to virtually any device, such as barcode scanners, scales, sensors, etc.

ERP Systems

Communicate with enterprise resource planning systems

Web Services

Connect to any web service including REST and SOAP

MQTT

Connect intelligent devices to infrastructure

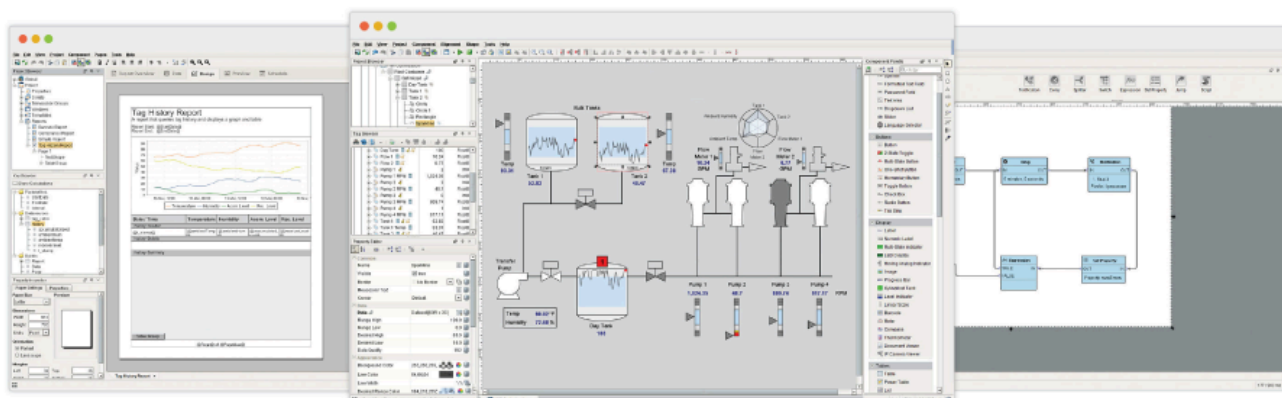
OPC UA, OPC DA, OPC Tunneler

Access historical data from databases, devices, and applications

Design Projects and Resources

By using different components and linking them to tags, each other, and different parts of your project, you can create any type of application you need. You can also directly interact with any projects you create or modify in the Designer as if you were an operator using the Designer's Preview Mode. This helps users test their projects before deploying any changes across your architecture.

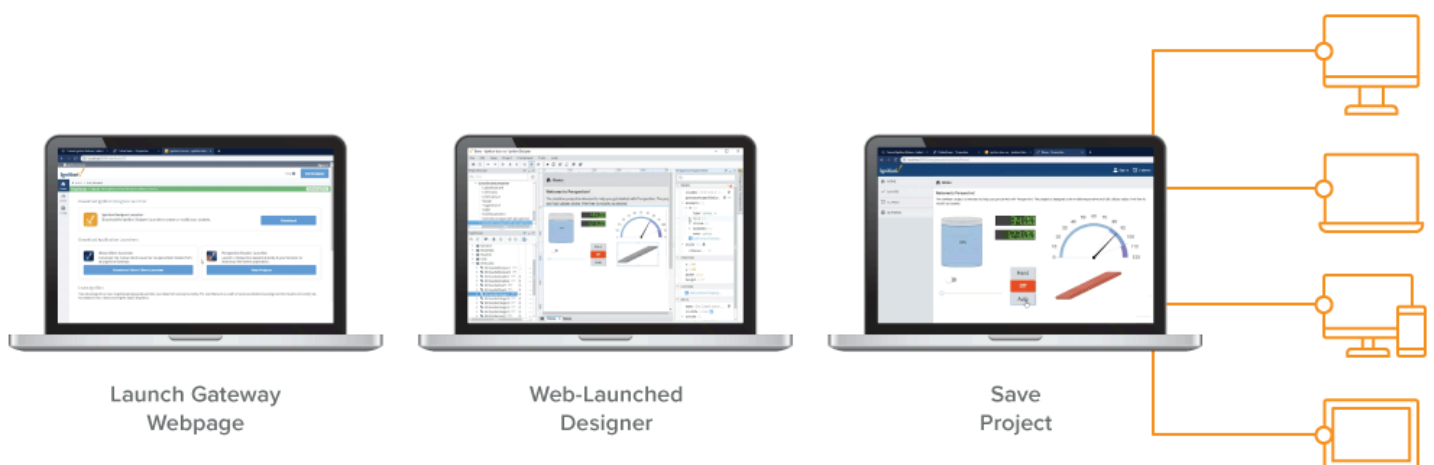
Using the features available in Ignition, you can create projects such as the one pictured below.



Understanding Ignition's Flow

Ignition is easy to install and straightforward to use, from project creation to production deployment and beyond. Once Ignition is installed, follow the steps below to set up and launch a project:

- **Launch the Gateway Webpage:** The Gateway Webpage is where you store all of your information, and configure all of your general settings, like device connections, database connections, security, Gateway backups, and redundancy.
- **Launch the Designer:** Once your connections are in place, you can use them when developing a project. Download the Designer Launcher or set up a deep link on any system that can connect to your Gateway, and then launch the Designer to begin creating your project. Add resources such as tags, query databases, status metrics, history trends, and alarms to your project.
- **Save your Project:** When you save, Ignition sends all your data and changes back to the Gateway. Everything is centrally stored in the Gateway, so you never have to worry about managing several versions or trying to combine multiple changes into one. You can even launch Designers concurrently to allow multiple people to work on the same project at the same time. Projects are not limited in scope, allowing you to create them for anything you can think of, such as HMIs, general SCADA software, reporting, history, and alarming.
- **Launch Client and Session Runtimes:** You can launch one runtime or multiple at the same time. Download the Vision Client Launcher, Perspective Workstation, or create a deep link on any system within your network to launch Clients and Sessions the same way as the Designer. All of your runtimes talk directly to the Gateway to get new information, eliminating any worry about sync issues or individual runtime loading changes.



Modules Overview



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About Ignition's Modules

[Watch the video](#)

Start Small or Large, and Grow From There

Get the functionality you need now, with the freedom to seamlessly add on to your system and match your company's ever-growing needs. The key to Ignition's flexibility is its modular architecture, which means you can buy different modules to perfectly fit your company's requirements.

Ignition is a platform that allows you to put together any system you want, and its modules are the building blocks. You can load all of them for a complete system that can do anything, or pick and choose only the ones you need right now.

What are Modules?



Modules are additional files that allow Ignition to do more. Much like adding a new tool to the workbench, adding new modules extends Ignition's capabilities while offering new ways to approach and solve problems. Most of the main features of Ignition are actually provided by different modules such as the **Perspective**, **Vision** and **SQL Bridge** modules.

Modules integrate seamlessly into the system and provide things like new Designer workspaces, new Gateway settings, new drivers, and much more. Newly installed modules immediately integrate with other modules, so installation is quick and painless.



Why Modules?

The modules in Ignition offer many benefits.

- **Flexible Licensing** - Only license the modules that you need, saving money and reducing complexity compared to big monolithic applications that try to do everything. At the same time, the modules have been designed to offer a broad swath of functionality, to avoid having too many pieces.
- **Hot-Swappable** - Modules can be dynamically **loaded and unloaded**, allowing you to install, remove, and upgrade them without affecting other parts of the system. This can have huge implications for big projects where up-time is important.
- **Increase System Stability** - Building modules on a common platform means fewer bugs, better isolation, and all around increased stability.
- **Pluggable Module Architecture** - The pluggable module architecture allows quick integration of new modules into the Ignition platform. From time to time new modules will be released which add additional features. Third-party modules that provide a wide range of functionality are also available.

What Can Modules Do?

Modules are what drive Ignition's functionality and allow for unlimited possibilities. Here are some common examples of what modules can do:

- **Create Screens for all Occasions** - Dashboards, detail windows, historical displays, and more can be created with the **Vision** module. Read real-time values from any OPC-UA server with the **OPC-UA module**, and display the data for all users to see. Interactive screens with user-driven forms can also be created, so users can easily write back to a PLC, store data in a database, and much more!
- **SCADA on the Go** - Ignition applications can be viewed on mobile devices with the **Ignition Perspective App**. Travel through the plant floor with quick access to all your applications. Break free from attached panels and monitors by viewing projects from tablets, phones, or any other mobile device.
- **Lightning-Speed Alarm Detection** - Long gone are the days when an operator must monitor every aspect of the system to look for problems. Ignition can generate alarms when certain conditions are met, such as when temperature readings reach a certain point, or communication with a device has dropped out. Alarms can be easily displayed with pre-built components, and alarm events can be stored into any SQL database. Additionally, with the Notification modules, Ignition can generate messages when an alarm triggers. Send **emails**, **SMS texts**, or **phone calls** to operators once an issue is detected. Users will always know as soon as a problem occurs.

- **Easy Data Collection** - With either the [SQL Bridge](#) or [Tag Historian](#) module, Ignition makes data logging a breeze! History collection can be enabled in just a few steps, and the data can be feed into other parts of Ignition, such as charts, tables, and even reports! All history is stored in a SQL database, so there is no need to worry about proprietary systems locking away the data. History can easily be accessed by third-party software such as ERP or SAP systems.
- **Dynamic Reports** - Instead of printing individual tables or charts, the [Reporting](#) module creates powerful, visually stunning, reports on-demand. Historical data recorded by the Tag Historian or SQL Bridge module can be inserted into a report, but data from any SQL database can easily be visualized and presented in a report. Reports can also be scheduled to run automatically, and be delivered in a number of ways such as emails, or saving to a network drive.

Third-Party Modules

In addition to the modules provided by Inductive Automation, several third-party companies have developed their own modules using our Module Software Development Kit. These modules add even more possibilities and functionality to help you design any project.

- **MES** - [Sepasoft](#) offers a suite of [Manufacturing Execution Systems \(MES\) modules](#) that allow you to track OEE, implement a SPC system, track resources, and much more! The core purpose of these modules is to spot deficiencies in your process, and increase profitability by detecting problem areas, or catching problems before they become an issue.
- **MQTT** - Modules from [Cirrus Link](#) bring the power of [MQTT](#) into Ignition. These modules expose massive amounts of data-points as tags, and allow Ignition access to data that would otherwise be lost. Modules from our Strategic Partners can be found on our [downloads](#) page.

How Can I Create My Own Modules?

Want to help make Ignition better? Check out our [SDK documentation](#) where you will find all of the resources necessary to develop your own module. Modules can be as simple as adding scripting functions or components, or as complex as creating whole new systems for Ignition.

Core Modules

Build any kind of HMI (human machine interface) or SCADA (supervisory control and data acquisition) system using Ignition's powerful offering of HMI/SCADA modules.

What Are Core Modules?

Core Modules are commonly used modules included in a typical installation. Most systems have at least one of these modules installed. Each core module encapsulates a core SCADA or HMI principle such as data-logging or process visualization. These modules are the foundation upon which great projects are built.

SQL Bridge



Bridge the gap between OPC data and SQL databases and get a highly efficient SQL-based Tag historian and transaction manager. Easily log data, call stored procedures, and synchronize data bi-directionally.

Perspective



Create beautiful, mobile-responsive industrial applications that run natively on any device type such as smartphones, tablets, touchscreens, laptops, and desktop computers. It automatically adapts to fit screens of any size and orientation.

Vision



Use this module to launch an unlimited number of powerful Ignition Vision clients anywhere on the network. Display charts, graphs, trends, HMI screens, and more.

Tag Historian



Turn a SQL database into a high-performance time-series tag historian.

Reporting



Create dynamic, database-driven PDF reports with ease.

OPC-UA



Connect to most major PLCs (Programmable Logic Controllers) with the Ignition OPC-UA Module. This module serves as a totally cross-platform OPC-UA server with an open, pluggable driver system.

Alarm Notification



Configure the logic for how, why and when alarm notifications are delivered, manage alarm notification for groups of users, and send notifications via email.

SMS Notification



Add text alerts with the SMS Notification Module for even more options.

Sequential Function Charts



Streamline the creation, organization, and visualization of robust logic systems.

Web Dev



Create web-pages that are hosted on Ignition's web server.

Enterprise Administration



The EAM provides a secure and intuitive way to manage many Ignition installations from one location.

Vision Module

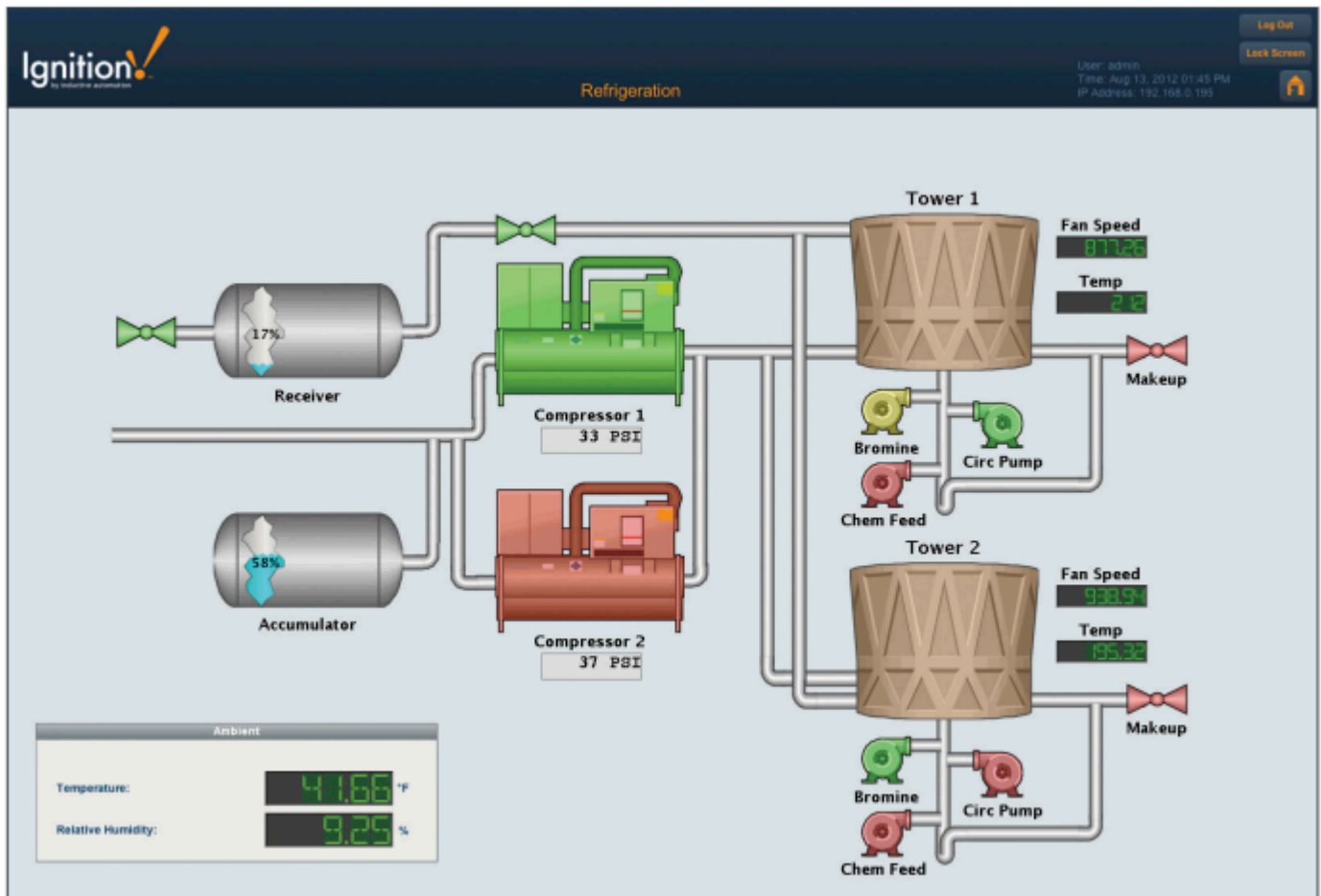


HMI/SCADA Visualization

Get Realtime and Historical Data on Control Screens

The Vision module delivers a dynamic, powerful, and beautiful HMI experience unlike any other. Display realtime and historical data on everything from status and control screens to interactive charts and tables so you can analyze data at a glance and quickly act on it. Since all clients are connected to a central server, everyone in your company will stay up to date and can easily access the realtime data they need.

You'll never be limited by how many Clients (runtimes) or screens you can use because the Ignition Vision module includes unlimited clients per central server. Every member of your company can have insight into operations at no additional cost.



Realtime Status and Control

Ignition's realtime status and control functionality, coupled with advanced analytic capabilities provided by Ignition's SQL database integration, gives you the power to quickly analyze and easily display the status of your facility.

Alarming

Set up screens to display realtime alarms from Ignition's [Alarming](#) system, so your operations team can respond quickly to resolve the issue.

Analyze Realtime and Historical Data

Included customizable charts, tables and graphs display your real-time and historical data, making at a glance analysis easy. You'll be able to quickly set up executive dashboards, track key performance indicators (KPIs), and view trends.

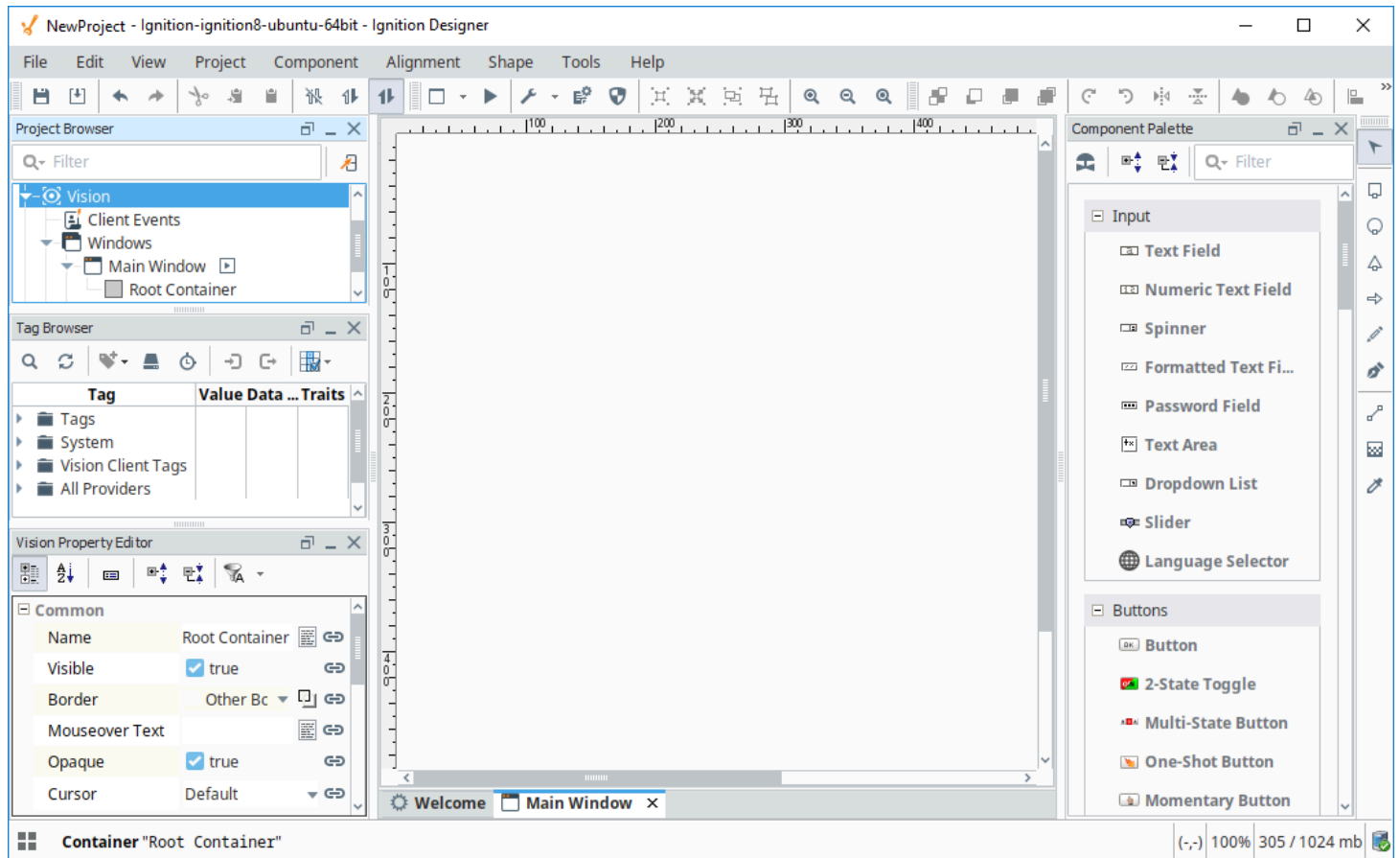
Database Front-End

Easily integrate data from SQL databases with your SCADA system. Data entered by operators can be written directly to any database. The powerful property binding system makes it easy to display

information from databases on any screen.

Designer Included

Clients are configured through the included Ignition Designer. Drag-and-drop configuration makes screen development intuitive; simply drag Tags and drop them onto components to instantly bind data to inputs, displays, tables, charts, and more.



Vector-Based 2D Drawing Tools

Create distinctive screen designs and layouts with shape-building tools for lines, polygons, rectangles, arrows, and circles. Vector graphics let you create precision shapes and Bézier curves that look great on any size monitor; shapes scale to any size without losing image quality.

Image Library

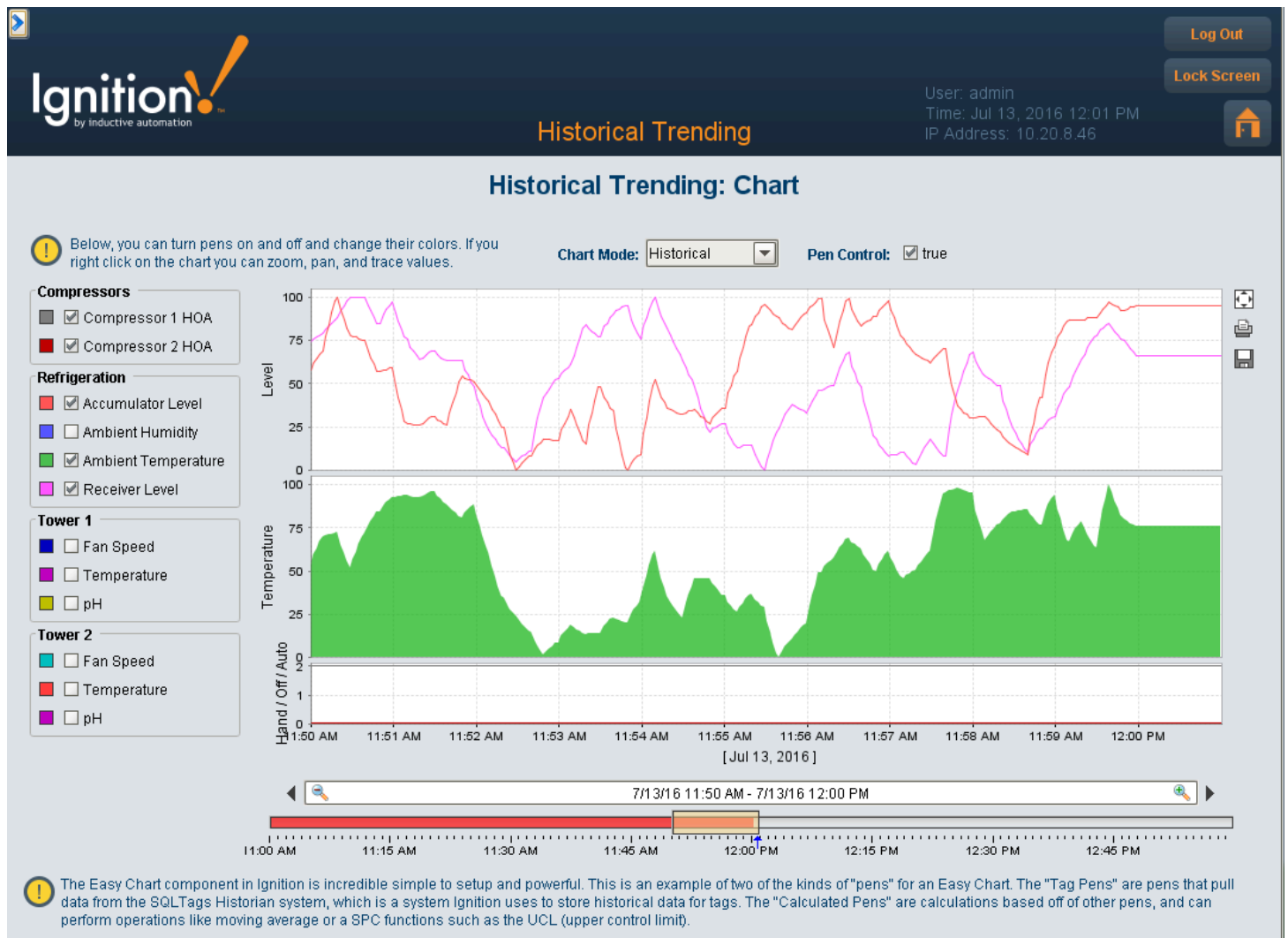
The designer integrates Symbol Factory 2.5 from Software Toolbox. The intuitive interface allows you to browse and search through nearly 4,000 high quality vector graphics symbols. Once you find the symbol you're looking for, simply drag-and-drop it onto your design window to use it right away.

Easily Create Animations

State dependant settings and dynamic positioning lets you bind shape properties to data values so you can easily create animations.

Speed Development With Templates

Develop large projects at record speeds by using component templates. Instances of each template can be placed on as many screens as you want. Any changes made to the template are automatically updated to any instance of that component, saving a huge amount of tedious development time.



Python Scripting

Advanced functionality can be achieved using the built-in Python scripting engine. Python is an extremely popular, powerful, and easy to learn scripting language. Python is highly regarded for its readability, making your projects easy to maintain.

Secured Via SSL

Every client you launch from the Vision module is secured using SSL protocols. In order to keep your data secure, authentication groups can be used to strictly limit access to certain areas of a project to only the users with appropriate access levels.

Unlimited Clients and Instant Deployment

With the Ignition Vision module installed on your server, you can launch as many clients as you want, instantly. No individual client install required.

Update All Screens With One Click

With Ignition, managing five clients is just as easy as managing 50. All clients can be updated instantly by making changes to the master project screen on your server, and then clicking the save button.

View Anywhere, Any Time

View your HMI/SCADA system from anywhere, any time, on any machine. Ignition uses your computer's web browser to launch rich Java applications – not thin web pages – which are fast and cross-platform, making accessibility easy for anyone on your network. For more information on accessing Vision projects remotely, refer to the [Accessing Projects Remotely](#) section.

Looking for Less?

Some systems only require a handful of clients at any given time. In cases like these the **limited version** of Vision is a perfect fit. It contains all the functionality of the full version, but at a greatly reduced cost. Contact our Sales department for more details.

Want to Learn More?

For more information on the Vision module, please see the [Vision](#) section of this user manual.

Perspective Module



PUBLIC DEMO HOME PAGE

The Demo Project uses the Perspective Module to show many key features of Ignition. [Go to the Demo Page](#)



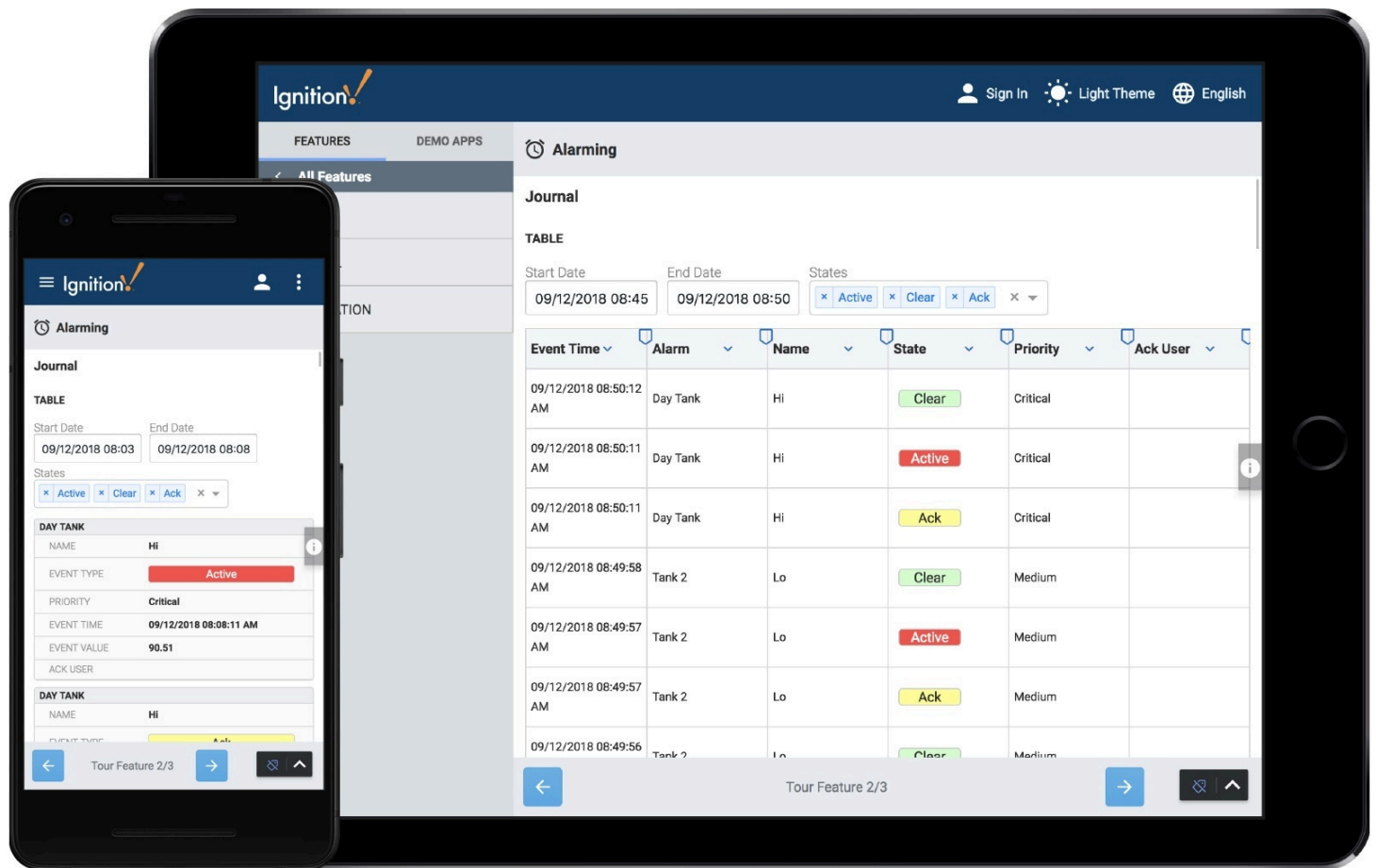
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What is Ignition?

[Watch the video](#)

Mobile Responsive Design

The Perspective module raises the bar for visualizing your control applications in Ignition. Not only does it leverage the popular standard HTML5/CSS3 technology for its UI layer, but it also allows users to see and control their application on any device, from a small smartphone to an oversized desktop, in an optimized format. HTML5/CSS3 allows screens to display gracefully on any device, regardless of size or scale. Multi-touch responsiveness allows for greater flexibility of use than ever before. The Perspective module marks the beginning of truly mobile-optimized, touch-responsive, easily accessible applications for monitoring, control, analysis and data gathering in industrial systems.



Device Compatibility

The Perspective module creates applications that are compatible with any device, including all mobile touchscreen devices like smartphones and tablets, and any desktop running any current web browser, on any major operating system: Windows, macOS, and Linux, iOS, and Android.

For more information on accessing Perspective projects remotely, refer to the [Accessing Projects Remotely](#) section.

Run as a Native App

Run your Perspective Sessions in a web browser or in a native App on your device. Apps can be downloaded on Android or iOS devices and allow you to natively run a Perspective session on your phone or tablet. This gives you the ability to use more of your device, like using the camera to scan barcodes or the built-in GPS to verify a location.

Responsive Design

Applications designed with the Perspective module respond to changes in screen size and orientation, and scale elegantly when launched on any size mobile multi-touch device. Perspective provides several container types for maximum design flexibility, each of which employs a different layout

technique. Designers can compose these container types together, providing a very flexible system that can handle any kind of responsive design.

Designed for Touch

Perspective employs multi-touch technology, making it possible to work with TouchPad and touch-screen interfaces found on smartphones, tablets, laptops, and desktops. This allows users to work with familiar tools for panning, zooming, scrolling and more.

CSS and Themes

The Perspective module takes advantage of its roots in web technology to give you easy to configure themes and styles using familiar CSS settings. Configure a few themes, use them throughout your projects, and swap between them however you'd like. It's easy to let your users change text, and colors whenever they like.

Security via SSL

Clients launched from the Perspective module are secured using cutting-edge encrypting technologies and communications protocols to provide the most secure web-based data transfer. It also has strongly enforced “guest mode” access to prevent against unauthorized writes on the Gateway.

OPC UA Module



Cross-Platform OPC UA Functionality

The Ignition OPC UA module offers OPC UA server functionality with a variety of device drivers and a robust, open driver API.



OPC UA Server Functionality

This module turns Ignition into an OPC UA server, capable of handling connections from any OPC UA compatible client. Outgoing connections can also be made to 3rd-party OPC UA servers. In this way Ignition functions as both an OPC UA server and an OPC UA client.

Built-in Device Drivers

The OPC UA module offers a number of device drivers for common protocols out of the box, and is easily expandable thanks to the hot-swappable module architecture in Ignition. New drivers can be downloaded and installed in minutes without requiring a system restart or otherwise affecting other parts of the Ignition platform.

Drivers for the OPC UA module are deployed as modules themselves. While they don't add a visible element to the system, they are loaded and upgraded in the same manner as other Ignition modules. A list of the included drivers on install can be found on the [Driver Modules](#) page.

Redundancy Support

The OPC UA module ties into the Ignition redundancy in order to provide efficient access to device data along with failover redundancy, with no additional configuration.

Public Driver API

Anyone can create new drivers thanks to the open driver API, and users can download and install drivers created by other developers. This is the first time such an API has been made publicly available for a product like Ignition. For more information about creating drivers for Ignition, visit the [Inductive Automation website](#).

Ready to Get Started?

Documentation on the OPC UA module can be found in the [OPC UA and Device Connections](#) page.

Driver Modules

The following drivers are available for Ignition's OPC UA module.

Allen-Bradley Ethernet

The Allen-Bradley brand of programmable logic controllers (PLC) is a popular choice in many industries. Ignition can connect to the following Allen-Bradley controllers:

PLC	Capability
Logix Driver	Connect to Allen-Bradley Logix family devices, including devices with firmware v21+.
ControlLogix	Connect to ControlLogix firmware v20 and prior processors.
CompactLogix	Connect to CompactLogix firmware v20 and prior processors.
Micro800	Connect to Micro820, Micro850, and Micro870 series PLCs.
MicroLogix	Connect to MicroLogix 1100, 1200, 1400 and 1500 series PLCs.
PLC5	Connect to PLC5s via Ethernet.
SLC	Connect to SLC 5/05s via Ethernet.

See the following links for detailed step-by-step instructions on how to connect to these PLCs:

- [Connecting to CompactLogix](#)
- [Connecting to ControlLogix](#)
- [Connecting to Logix](#)
- [Connecting to Micro800](#)
- [Connecting to MicroLogix](#)
- [Connecting to PLC5](#)
- [Connecting to SLC](#)
- [Allen-Bradley Connection Paths](#)

Modbus

The Modbus Driver module allows the Ignition OPC-UA server to communicate with any device that supports the Modbus protocol, that is, the Modbus TCP and Modbus RTU over TCP protocols.

The Modbus Driver module can connect directly to devices that support Ethernet communications or it can also connect to Modbus devices through a Gateway device.

See the following sections for detailed step-by-step instructions:

- [Connecting to Modbus Device](#)
- [Modbus Addressing](#)
- [Modbus Address Mapping](#)

Siemens

The Siemens Drivers module provides support for connecting to the following PLCs via TCP/IP using the S7 protocol:

- S7-300
- S7-400
- S7-1200
- S7-1500

For step-by-step instructions on how to connect to Siemens Drivers, see the [Siemens](#) page.

UDP and TCP

The UDP driver is a strictly passive listener. The UDP driver is configured to listen to one or more ports on a given IP address.

The TCP driver is configured to connect to one or more ports on a given IP address. This driver can listen, as well as write back to the connected port.

Rules are configured that dictate how the incoming data is interpreted.

For step-by-step instructions on how to connect to TCP Drivers, see the [UDP and TCP Driver](#) page.

DNP3

New in 8.1.36

The DNP3 module allows the Ignition OPC UA server to communicate with other devices that support the DNP3 protocol (DNP3 outstations). Utilizes event-based polling for data acquisition by default as well as unsolicited messaging and explicit reads.

For more information, see [DNP3](#).

Legacy DNP3

The Legacy DNP3 module allows the Ignition OPC UA server to communicate with other devices that support the DNP3 protocol (DNP3 outstations). Utilizes unsolicited messaging and explicit reads for data acquisition. No support is offered for this driver.

For more information, see [DNP3](#).

Omron

The Omron Driver modules allows the Ignition OPC UA server to communicate Omron devices.

More information on the Omron NJ driver can be found on the [Omron NJ Driver](#) page.

In addition, the [Omron FINS Driver](#) page has details on the Omron FINS driver.

BACnet

The BACnet driver allows an Ignition OPC UA server to communicate via the BACnet protocol.

More information can be found on the [BACnet](#) page.

IEC 61850

New in 8.1.25

The IEC 61850 driver leverages the Triangle Microworks 61850 library to support IEC-enabled devices using the MMS protocol. The IEC 61850 driver is currently designed for Windows and Linux x64 OS only.

More information on the IEC 61850 driver can be found on the [IEC 61850 Driver](#) page.

Mitsubishi TCP Driver

New in 8.1.28

The Mitsubishi TCP driver allows users to create, import, or export addresses when connected to devices that support the MELSEC protocol.

More information can be found on the [Mitsubishi TCP Driver](#) page.

Tag Historian Module



The Tag Historian module for Ignition allows you to turn a SQL database into a high-performance time-series Tag historian. It requires minimal work to implement and is simple to use, even if you aren't very experienced with SQL databases. The power, ease of use, and incomparable price-to-performance ratio of the Tag Historian module make it the clear choice for storing your organization's valuable historical information.

Store History with a Click

With the Tag Historian module, you can store history on an Ignition Tag to your database with the click of a mouse - no complex configuration, tuning, or data modeling required.

Create Tables Effortlessly

The module creates and manages tables for you, so you don't need to be knowledgeable about database management to use it.

Easy Query Binding

Use the data intuitively throughout Ignition with simple, visual query binding screens – no need to write SQL or complex queries.

Powerful Historian Engine

The module's high-powered historian engine automatically supports compression, partitioning, interpolation, and aggregation for any SQL database.

Make Data More Accessible

By recording your data to a SQL database, the module makes your process data available to any application with database access.

Realtime Charts and Trends

Combine with the Vision Module to simply pull the information you need into individual charts and graphs.

Great Performance and Value

By leveraging the power of SQL databases, the Tag Historian Module delivers tremendous performance at a fraction of the price of traditional historian products.

Powered by Ignition

Since the Tag Historian module is a SCADA module for Ignition, it integrates seamlessly with the Ignition platform and all other modules in the Ignition SCADA suite. Because the module is built on the power of Ignition, it shares the same advantages, such as cross-platform compatibility, unlimited free clients, robust out-of-the-box SQL database support, and fast installation. Its ability to leverage the full power of Ignition places it in a class above any other Tag historian on the SCADA software market.

Learn More

Read more about Tag Historian in the [Tag Historian](#) section of the manual.

SQL Bridge Module



High-Powered Data Acquisition

Share Plant Floor Data With Any Database

The Ignition SQL Bridge Module brings the power of structured query language (SQL) databases to your industrial process. The module allows you to leverage Ignition's unlimited Tags and database connections at an astonishingly low price — even if you don't know much about SQL databases.

Think of the SQL Bridge module as a "Swiss Army Knife" for integrating programmable logic controllers (PLCs) and SQL databases in unlimited ways, such as the capability to move data bidirectionally, log huge amounts of data easily, synchronize PLCs with databases, create powerful recipe and batching systems, and sequence entire processes.

The screenshot displays the Ignition SQL Bridge Module interface. The main window is titled 'new historical' and is in a 'Running' state. It features a 'Basic OPC/Group Items (6)' table, a 'Run-Always Expression Items (ignore trigger) (0)' table, and a 'Triggered Expression Items (0)' table. The 'Basic OPC/Group Items' table contains the following data:

Item Name	Source V...	Latched ...	Target Name	Data Type	Properties
Sim_Generic/...	718.347	705.000	Ramp0	Float8	
Sim_Generic/...	38.760	28.750	Ramp1	Float8	
Sim_Generic/...	93.347	80.000	Ramp2	Float8	
Sim_Generic/...	68.140	53.125	Ramp3	Float8	

The 'Run-Always Expression Items' table is empty. The 'Triggered Expression Items' table is also empty. The 'Tag Browser' on the left shows a hierarchy of tags, including 'Ramp0 OPC', 'Ramp1 OPC', 'Ramp2 OPC', 'Ramp3 OPC', 'Ramp4 OPC', 'Ramp5 OPC', 'Ramp6 OPC', 'Ramp7 OPC', and 'Ramp8 OPC'. The 'Status' tab at the bottom shows the following information:

- Running
- Last execution: Wed Apr 24 10:03:24 PDT 2019
- Last trigger: Wed Apr 24 10:03:24 PDT 2019
- Next execution: Wed Apr 24 10:03:25 PDT 2019
- Last duration: 0.0 second(s)
- Avg duration: 0.00020 second(s)
- Total executions: 44
- Failed executions: 0
- OPC/Tag writes: 0
- DB writes: 308
- OPC/Tag write failures: 0

The 'Execution Scheduling' section on the right shows the 'Timer' option selected, with a value of 1 second(s). The 'Data source' is set to '<Default>', and the 'Table name' is 'group_table'. The 'Automatically create table' checkbox is checked. The 'Use custom index column' checkbox is unchecked, with the index column set to 'group_table_ndx'. The 'Store timestamp to' checkbox is checked, with the timestamp set to 't_stamp'. The 'Store quality code to' checkbox is unchecked, with the quality code set to 'quality_code'. The 'Delete records older than' checkbox is unchecked, with a value of 1 day(s).

Move Data Bidirectionally

The module uses transaction groups that function as a bidirectional data bridge between an OPC server and a SQL database. Transaction groups can perform many data-centric tasks, such as event logging, vertical and horizontal data storage, inserting rows into a table, storing data to a specific row.

Log Data Easily

The easiest, most powerful data logger on the market includes triggers, handshakes, expressions, and other items that help you store data in the exact way you need. Triggers offer endless data-storage possibilities, such as storing production summaries, logging the sequence of event information, and tracking downtime events. Simply map your process data to any table structure and let the module do the work of creating and managing new tables or writing to existing tables.



Synchronize PLCs with Databases

Extend your PLC address space into your SQL database with bidirectional mirroring, which immediately reflects any value change in the PLC or database end in the opposite end. Bidirectional mirroring enables real-time control via common web technologies and other database-compatible front-ends. Set the update rate for rows/fields (down to sub-second rates), and create two-dimensional arrays by adding rows. The SQL Bridge Module is the first and only software in the industry to offer this functionality.

Build Recipe & Batching Systems

By extending your process into the database, the full bidirectional access of the SQL Bridge Module enables you to create a robust, customized recipe and batching system. Use the database to store a virtually unlimited number of recipes, and modify recipes however and wherever you want, while tracking all changes historically. Set up reliable database-to-PLC transactions using triggers and handshakes. Leverage stored procedures to perform complex tasks or replace aging transaction systems.

Sequence Your Processes

Flexible triggers and database tables enable you to easily sequence entire processes. Use dynamic references to step the index to a row of values that are then written to the PLC. Create complex triggers, which reference multiple process variables and expressions, by using a simple expression language. Use rows/fields as timers and counters by leveraging the unique built-in hour meter and event meter functionalities.

Flexible and Easy to Use

Across the board, SQL Bridge is the clear winner for tying industrial systems into SQL databases. Online editing lets you make changes on the fly, without stopping your process or affecting other parts of Ignition. You can stop locking data away in proprietary boxes because all data is open and accessible in the database. Use flexible data modeling without a lot of work: the module automatically creates tables and columns in any format. The built-in table browser allows you to work entirely within the Ignition Designer, so there is no need for external programs.

Powered by Ignition

The SQL Bridge Module is a SCADA module for Ignition, the powerful HMI, SCADA, MES and MQTT software from Inductive Automation. It integrates seamlessly with Ignition and all other modules in the Ignition SCADA suite. Because the module is built on the power of Ignition, it shares the same advantages, such as cross-platform compatibility, unlimited free clients, robust out-of-the-box SQL database support, and fast installation. Leveraging the full power of Ignition, it is a data management tool unlike any other in the SCADA software market.

Looking for No-Frills Data Logging?

SQL Bridge Limited provides an affordable way to create [Historical Groups](#), and record history into any SQL database. Speak to our Sales department for more details.

Want to Learn More?

For more information on the SQL Bridge Module, please see the [SQL Bridge \(Transaction Groups\)](#) section of the manual.

Reporting Module

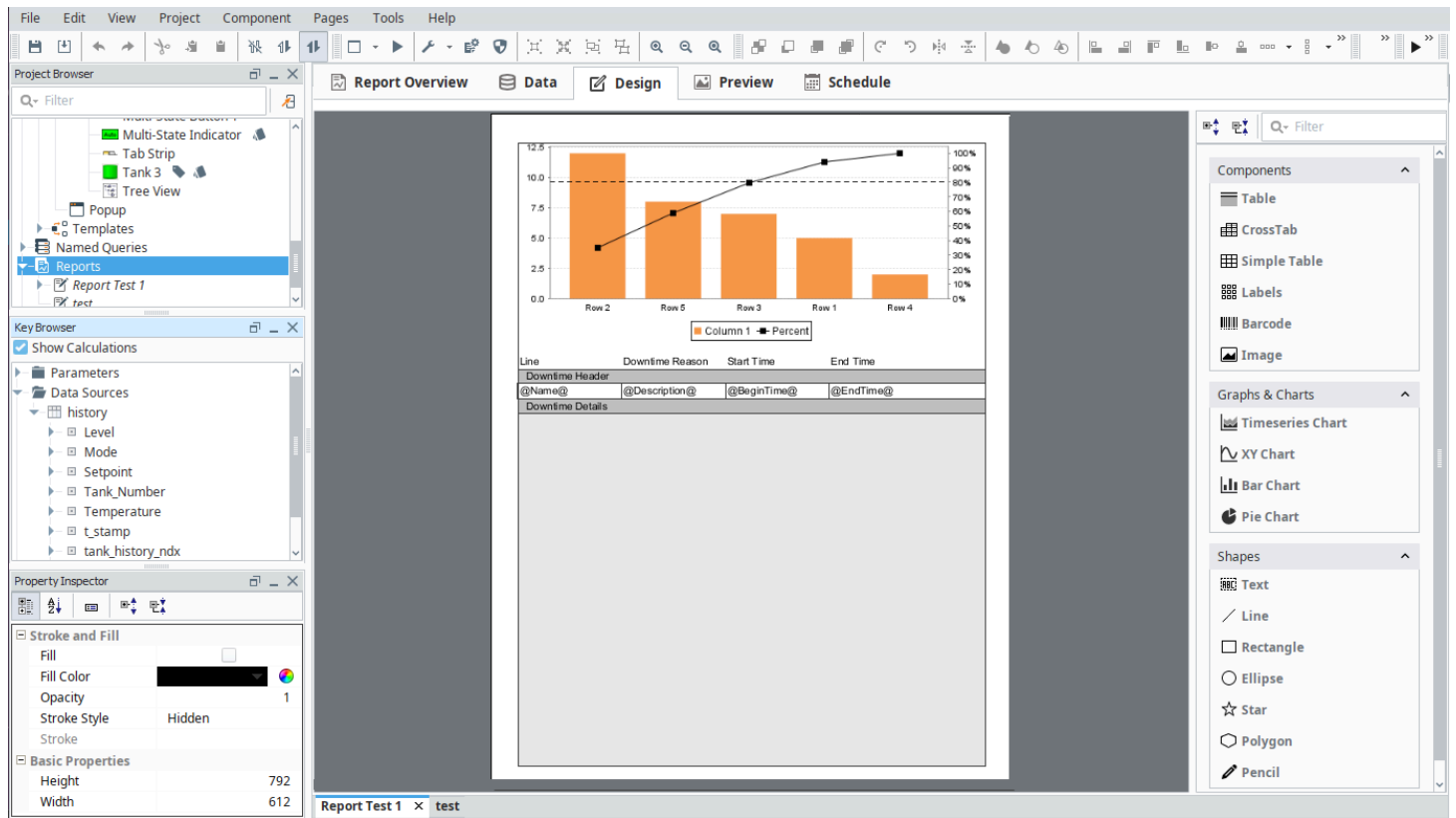


Dynamic Report Generation

Quickly and Easily Create Rich, Dynamic PDF Reports

Now it's easier than ever to make and distribute dynamic, professional reports in Ignition. The Ignition Reporting Module is a standalone reporting solution that simplifies and enhances the reporting process from beginning to end. Generate reports from existing files or create them from scratch. Pull data from a variety of sources, and design reports with a simple to use interface. Add charts, graphs, tables, crosstabs, shapes, and other components for visual impact. Save your reports in PDF, HTML, CSV, and RTF file formats, and set up automatic scheduling and delivery.

Use all of these powerful capabilities to quickly create many common types of reports such as production management, efficiency monitoring, downtime tracking, SPC, QA, OEE management, and historical data analysis.



Select Data from Multiple Sources

The Reporting Module makes it easy to define the data behind your reports. Specify any number of report parameters and data sources in your reports.

Access information from any SQL database. Also, you can also easily query data from Ignition's Tag Historian and event data from the alarm journal.

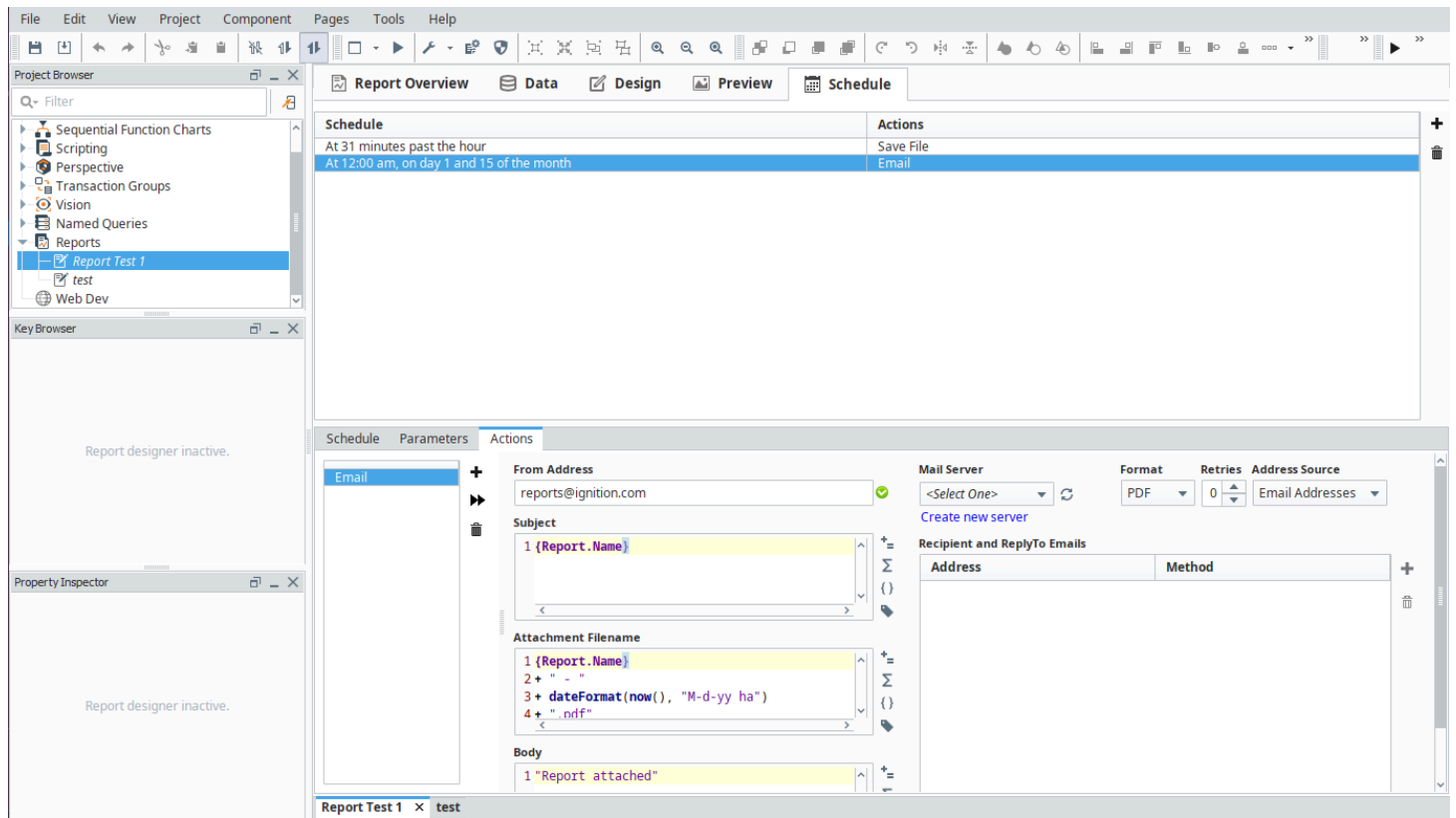
Design Reports with an Easy-to-Use Interface

Design your reports easily inside Ignition's Designer application. The interface so user friendly because it enables you to design reports with the same intuitive feel and rapid application development tools that you get when designing applications in Ignition. This allows you to design your reports using the drag-and-drop method.

Schedule Reports to Run Automatically

The Reporting module allows you to schedule reports within the Ignition Gateway. You can schedule a report to run on a regular basis; for example, on every Monday at 5:00 p.m. Then, your report will run as scheduled whether or not any Ignition clients are open.

You also have the option to set up triggered execution, which means that reports run on-demand when triggered by an event such as a tag change, a shift change, the finish of a production run, etc.

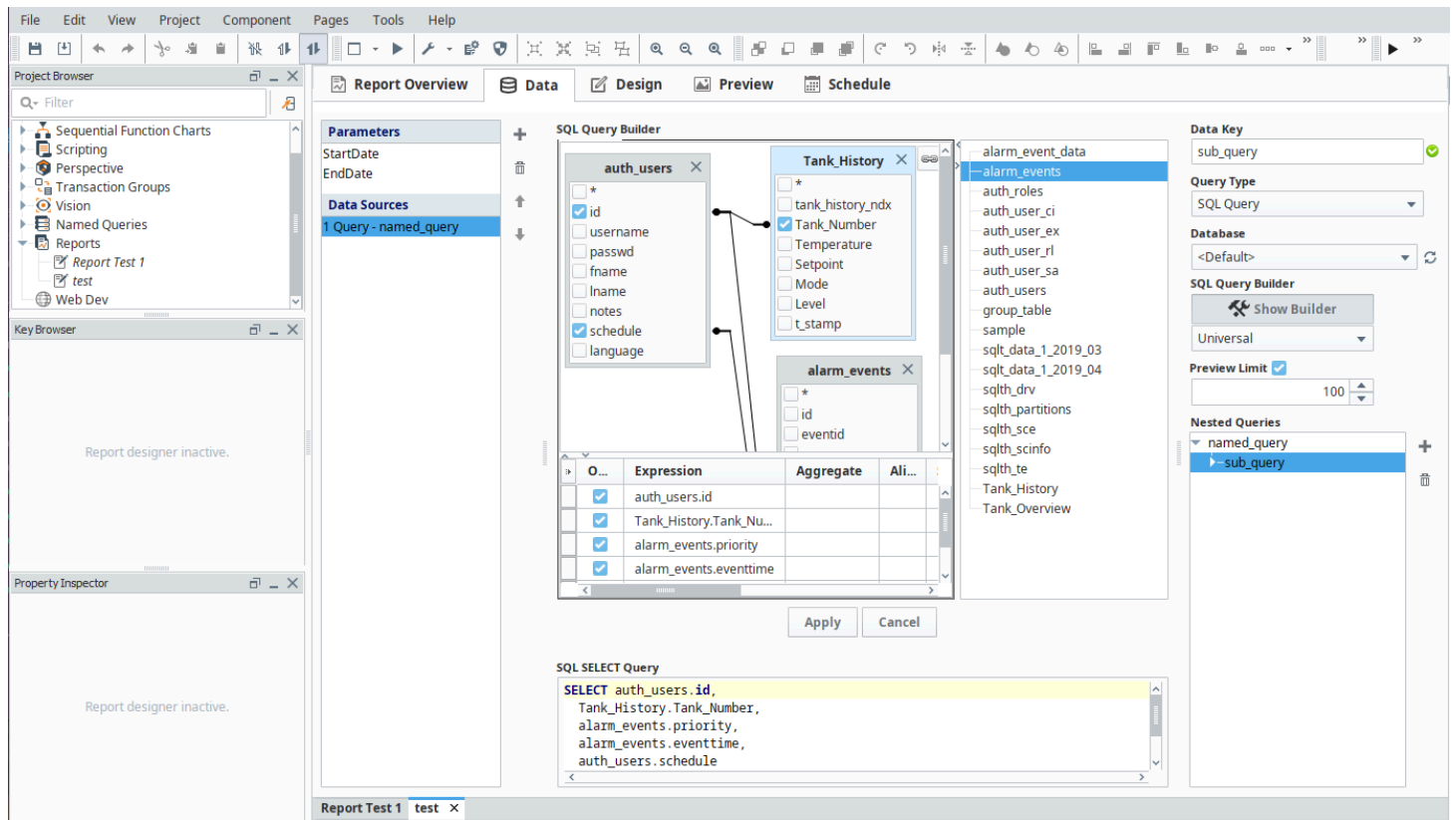


Print, Send, or Save Automatically

Scheduled reports can be automatically delivered in many ways: print, email, save to a file server, upload to an FTP server, or use scripting to customize the method of delivery. Have your reports distributed in the way you want, every time, automatically.

Powerful Query Tools

The Reporting Module has a powerful drag-and-drop query interface that allows you to build complex SQL queries easily. The new query structure allows you to create complex nesting which can correlate relational data and process historian data in a seamless fashion.



Powered by Ignition

The Reporting module is a SCADA module for Ignition, the powerful software from Inductive Automation. The Reporting Module integrates seamlessly with Ignition and with all other Ignition modules. Because the module is built upon the power of Ignition, it shares the same advantages, such as cross-platform compatibility, unlimited free clients, robust SQL-database support, and fast installation. Leveraging the full power of Ignition, the Reporting Module is unmatched by any other SCADA reporting product on the market.

Unlimited Options, Limited Price

The limited version of the Report module provides an affordable way to create and schedule just a few reports. Speak to our sales department for more details.

Want to Learn More?

For more documentation on the Reporting module, please see the [Reporting](#) section.

Alarm Notification Module



Alarm Notification

Manage SCADA Alarm Notifications Any Way You Choose

The Ignition Alarm Notification module enables you to configure the logic for how, why and when alarm notifications are delivered, manage alarm notification for groups of users, and send notifications via email. Notifications can be easily be acknowledged by the recipient via email.

Control Your Alarm Notification Logic

Ignition's alarm notification pipeline feature is an innovative tool that lets you easily chart out the routing of your alarms. Make your alarm notification logic as simple or as multifaceted as you want. Prevent alarm flooding by directing the right alarms to the right people at the right time.

With Ignition and the Alarm Notification module, you'll have greater control of what happens between when an alarm or alert goes active and when it is sent out to personnel, and of who gets alarm notifications and when.

By using a simple drag-and-drop interface, you can build various types of alarm notification logic, including:

- **Delay:** Hold off on sending notifications until nearby operators are given time to deal with the problem first.
- **Escalation:** Elevate alarm notification when operators are not handling alarms.
- **Consolidation:** Combine multiple alarms into a digested message.
- **Selection:** Distribute different alarms to different groups of contacts.

Escalation:

Send higher priority alarms to a different contact or group.

Consolidation:

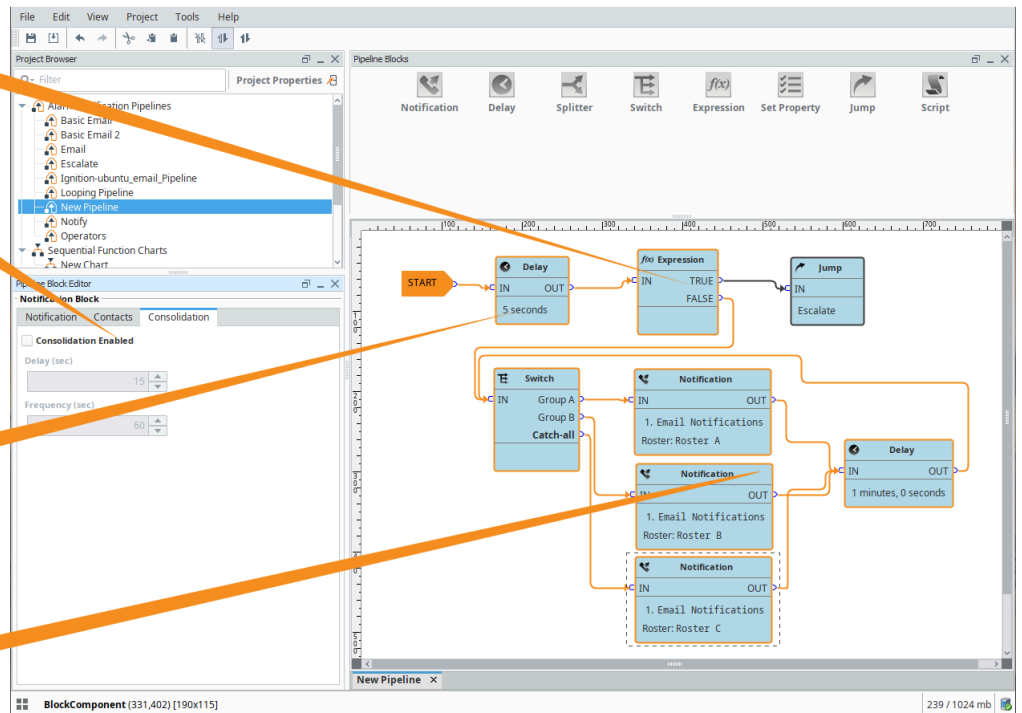
Combine multiple alarms into a digested message.

Delay:

Hold off on sending notifications until nearby operators are given time to deal with the problem.

Selection:

Distribute different alarms to different groups of contacts.



Manage Users & Schedules to Ensure Timely Delivery

Make sure the right people – and especially those on shift – get notified quickly. The Alarm Notification Module lets you organize individuals into groups based on their roles with the On-Call Roster feature.

Config > Alarming > On-Call Rosters

💡 Click the right arrow on each user in the user source column (left) to move them to the on-call list (right). Re-order the users on the on-call list using the up and down arrows to control who gets called first.

All Users from

manage

bonnie lund	→
jessica lane	→
Karlin Trejo	→
millan douglas	→
opcuauser	→

[Add All >](#)

On-Call Roster

✕ admin	↓	↑
✕ arthur	↓	↑
✕ susan	↓	↑
✕ wade	↓	↑

Save

When an alarm notification needs to be sent, it goes to a designated call roster and then the system evaluates individual schedules so that only those currently on shift will be notified. You can easily change schedules, assign roles and specify who should be notified when alarms pass through different notification blocks in the pipelines.

The Alarm Notification module lets you edit rosters in the client in real time and to edit individual schedules right in the authentication profile. With permission roles, you can let individuals edit their own information on-the-fly to account for irregular time away from work so that alarms will skip over them and be sent quickly to an available person.

2-Way Email Notification

With the Alarm Notification Module, users in your organization can receive and acknowledge alarm notifications by email.

Let's Get Started!

Learn more about alarm notifications in the [Alarm Notification](#) section.

SMS Notification Module



SMS Alarm Notification

Add SMS Functionality to Your Alarming System

Quickly let key people know about any alarm by sending a text message to any cell phone. The Ignition SMS Alarm Notification module enables both alarm notification and acknowledgment via text messages. You can enable phone-call alerts by adding the Voice Notification Module to your Ignition system.

Notify Users Quickly with a Text Message

By adding the SMS Notification module to Ignition, you can send and acknowledge alarm notifications via text messaging. SMS notification is an efficient and immediate method that makes it easier for users to respond to alarms no matter where they are.

This module requires the [Alarm Notification module](#) and a cellular modem.



Get Started

Read more about this module on the [SMS Notification Profile](#) page.



Web Dev Module



Use Web Services in Ignition

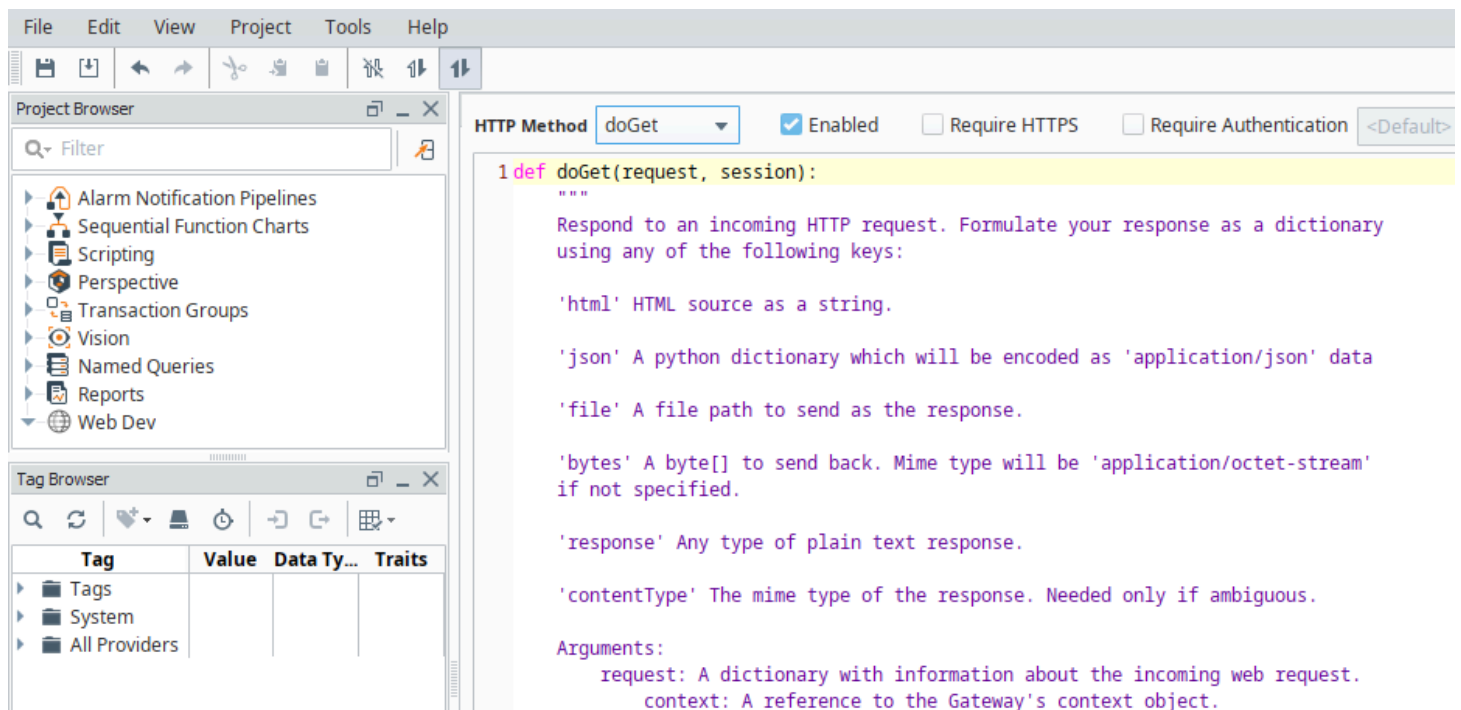
Host a Web Page on an Ignition Gateway

This module enables you to directly program against the web server inside the Ignition Gateway. Webpages can be built by hand using a combination of Python programming and static web resources such as images, CSS files, javascript files, and html files. You can design and host custom web pages directly against the Ignition service.

Configure Custom Web Service Calls

External systems can interact with the Ignition service through web service calls using the Web Dev module. Allow SAP and ERP systems to request data directly from Ignition by developing a custom, full-fledged, API.

More Information on the Web Dev module can be found on the [Web Dev](#) page.



Barcode Scanners and Web Enabled Devices

Many newer barcode scanners are web-enabled and don't use serial ports to connect. For these types of scanners you can use the Web Dev module to write whatever connect functions that you need. This opens up a whole new world of possibilities for connecting to various mobile devices.

Enterprise Administration Module



Enterprise Administration

Enhance the Reach of Ignition

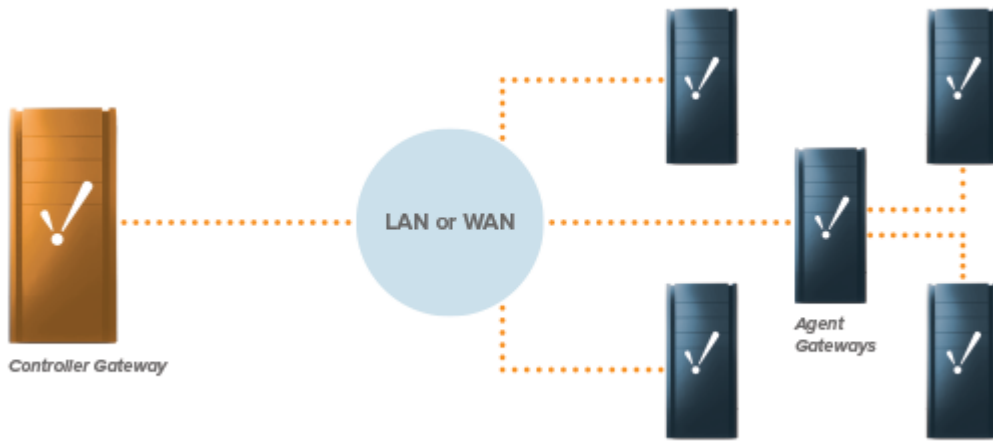
The Enterprise Administration module (EAM) provides a secure and intuitive way to manage many Ignition installations from one location. It is ideal for large enterprises that deploy multiple Gateways across vast geographical distances, but even companies with a few Ignition Gateways on a single plant floor can benefit from its ability to synchronize projects, monitor performance, and automate backup and recovery from a central location.

Manage Multiple Gateways from One Gateway

With the EAM module installed, an Ignition Gateway can function as the central Controller Gateway that connects with, monitors, and manages any number of remote Agent Gateways. Use the Controller Gateway to coordinate and automate many administrative tasks for Agent Gateways, including:

- Assigning, updating, activating, and unactivating licenses
- Deploying new and updated modules
- Disaster Recovery
- Remote Backups

All of these actions can be executed immediately or scheduled for later.



Synchronize Projects and Resources

The EAM gives you the ability to design resources and projects centrally in the Controller Gateway and send them out to the Agent Gateways.

Communicate Over a Secure Network

The EAM is built on a high-performance, high-security communication network that facilitates simultaneous access to multiple Gateways. Connect multiple Ignition Gateways using the Gateway Network and all copies of Ignition will be able to communicate freely.

Monitor Agent Health and Performance

In the Controller Gateway, the EAM provides health indicators for Agent Gateways and alarms for impending lifecycle events such as Agent Gateway failure. Memory usage notifications, warnings, and error events are also provided.

Automate Gateway Backup and Recovery

The EAM enables automated backup and quick recovery for all Gateways through a Gateway backup archive.

Powered by Ignition

The EAM is a SCADA module for Ignition, the powerful HMI / SCADA software from Inductive Automation. The EAM integrates seamlessly with Ignition and all other modules in the Ignition SCADA suite. Because the module is built on the power of Ignition, it shares the same advantages, such as cross-platform compatibility, unlimited free clients, robust out-of-the-box SQL database support, and

fast installation. Leveraging the full power of Ignition, it is an enterprise management tool unlike any other in the SCADA software market.

Get Started

Read more about EAM in the [Enterprise Administration](#) section.

SFC Module



Sequential Function Charts

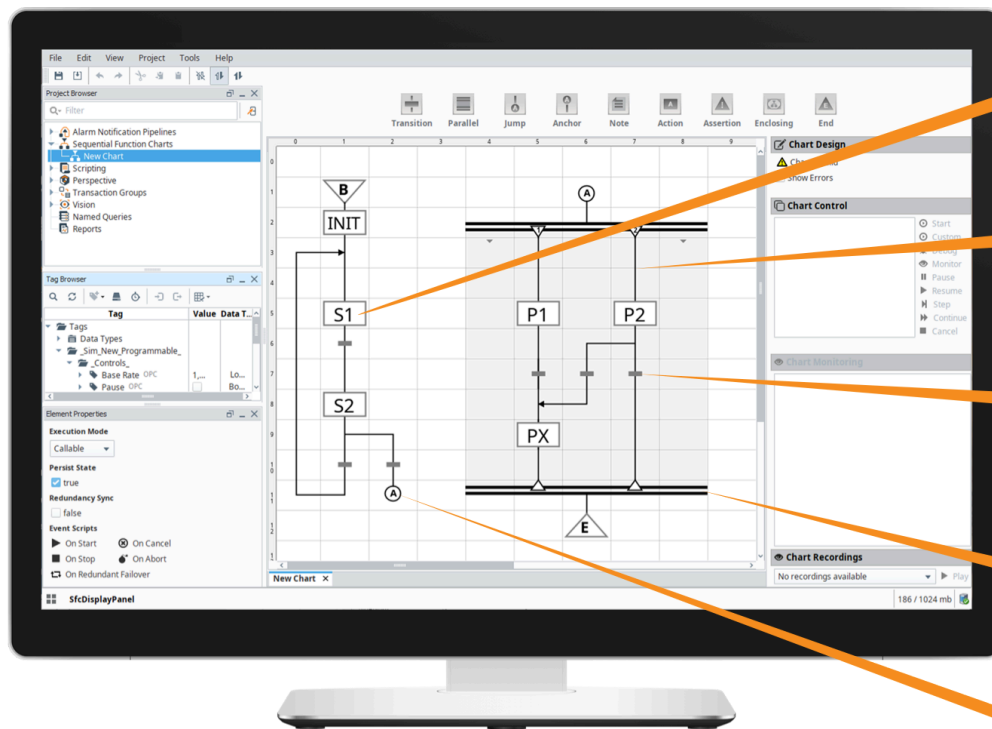
Streamline the creation, organization, and visualization of robust logic systems.

The Ignition SFC module's powerful visual programming language allows you to write complex logic in a simpler, more intuitive way. The SFC Module works seamlessly with Ignition, and represents a leap forward in the capabilities of the software.

Visual Logic Programming

The SFC module's visual, drag-and-drop programming tool makes the process of writing complex logic much smoother than using the basic Python scripts included in Ignition. Its standardized programming method, part of the IEC 61131-3 specification, will be familiar to many users who have experience in programming PLCs. With a simple visual interface, you can use steps, transitions, parallel blocks and other drag-and-drop elements to create complex charts. SFCs within Ignition can make use of scripts, Tags, and other elements already available in the Ignition platform.

- **Steps:** These elements perform a variety of useful functions.
- **Directed Links:** Use these to connect steps and other transitions to each other.
- **Transitions:** Conditions that evaluate to true or false, either allowing the flow to proceed or blocking it.
- **Parallel Branches/Syncs:** Use these to set up parallel actions.
- **Jumps:** Set up connections without crossing links.



Steps:

These elements perform a variety of useful functions.

Directed Links:

Use these to connect steps and other transitions to each other.

Transitions:

Conditions that evaluate to true or false, either allowing the flow to proceed or blocking it.

Parallel Branches/Syncs:

Use these to set up parallel actions.

Jumps:

Set up connections without crossing links.

Drag and drop powerful components to create robust logic systems.

Chart Monitoring

You can monitor charts visually in the Ignition designer and clients, watching each chart execute its logic, down to which specific step is currently running. You can even inspect the chart's internal variables as it runs. The visual nature of SFCs make them much easier to troubleshoot than Python scripts.

Build Robust Logic

Now it takes far less time to build any type of robust logic your enterprise may need: long-running tasks, parallel tasks, tasks that pause for certain conditions before proceeding, loops, and sub-charts.

Multiple Chart Instances

The module allows you to instantiate multiple instances of any chart. Each instance can be configured with different starting parameters, allowing the instances to be independent from each other.

Long-Running Charts

Charts may be designed to run for a very long time. They can even keep running if a Gateway is restarted by pausing on shutdown and resuming on startup. SFCs also support redundant Ignition setups to ensure the chart keeps running even if the primary Gateway fails.

Powered by Ignition

The SFC module is a SCADA module for Ignition, the powerful, award-winning, HMI / SCADA software from Inductive Automation. The SFC Module integrates seamlessly with Ignition and with all other modules in the Ignition SCADA suite. Because the module is built upon the power of Ignition, it shares the same advantages, such as cross-platform compatibility, unlimited free clients, robust out-of-the-box SQL database support, and fast installation. Leveraging the full power of Ignition, it is a SCADA logic engine unlike any other on the market.

Learn More

Documentation on the SFC module is available in the [Sequential Function Charts](#) section.

Additional Modules

Enhance Ignition's capabilities beyond traditional SCADA and HMI limits. These additional modules provide Ignition with even more functionality. Take your project to the next level with these powerful modules.

Voice Notification



Enable both alarm notification and acknowledgement via a phone call.

OPC COM



Integrate Ignition with Classic COM-based OPC Servers.

OPC COM Tunneller



Exposes OPC servers accessed through the OPC-COM module to Ignition's OPC-UA server, allowing you to easily expose tags from a DA server to any UA server.

Web Browser



View web pages directly from Ignition clients.

Serial



Adds platform-level serial comm support and serial-specific scripting functions.

Twilio Alarm Notification



Adds integration with Twilio via an SMS Alarm Notification Profile and scripting functions to send SMS.

SECS/GEM



Communicates with semiconductor fab equipment.

Voice Notification Module



Text to Speech Alarm Notification

Send Notifications Via a Phone Call

Ensure no serious issue is overlooked by speeding alarm notification delivery to the right people as soon as possible. The Ignition Voice Notification Module uses state of the art text-to-speech technology to add phone-call notification to your alarming/alerting process.

Set up voice notification for alarms in Ignition with the Voice Notification module. Use text-to-speech (TTS) technology to notify users of an alarm via a phone call and to allow users to acknowledge it with a simple key press. The VoIP-over-SIP voice notification system can be tied in with a VoIP phone system or online VoIP service, or bridged to a standard phone line using an existing phone gateway.

The Voice Notification module adds the ability to deliver alarm notifications to users via telephone, using any SIP compatible phone system. Messages are constructed in text, and are delivered through a high quality text-to-speech engine.

NOTE

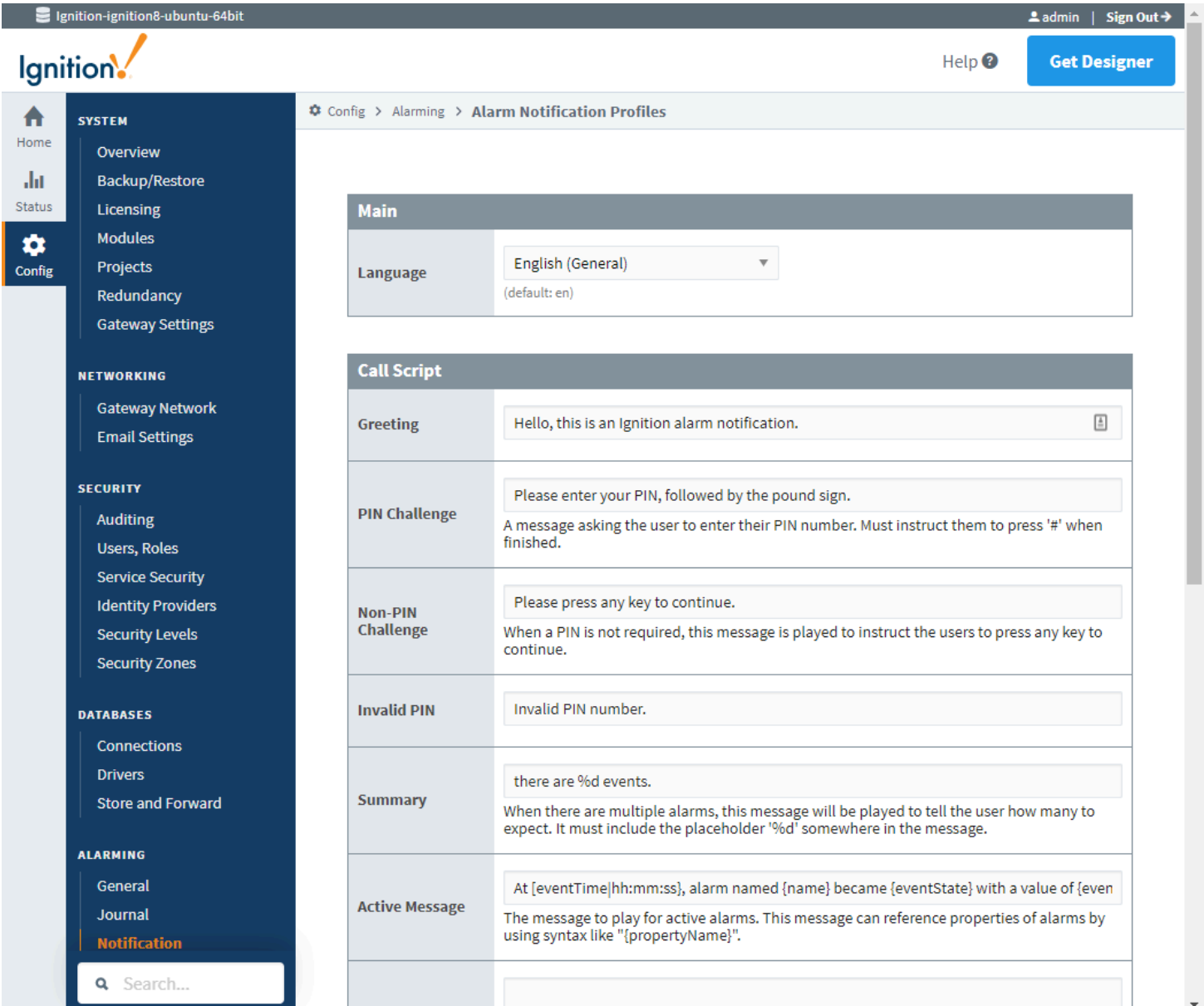
The Voice Notification module requires that the Alarm Notification module is also installed on the same Gateway.

Two-Way Acknowledgement

The Voice Notification module can be configured to allow users to quickly acknowledge alarms. With the Two-Way property enabled, the notification is sent out a response code in the message. The user simply replies with the response code and the alarm will be acknowledged.

Custom Notification Messages

The High-Quality Text-to-Speech Engine allows you to customize the alarm message the user hears, so you are not limited to a number of pre-recorded messages.



Audit Log Integration

The Voice Notification module can be configured to log successful message delivery and user acknowledgement into any connected database. Once recorded, a simple query will return all notification activity.

Multi-Language Support

Write your messages in any of the provided languages. A list of the available languages can be found on the [Voice Languages](#) page.

NOTE

This module requires the Alarm Notification module and some SIP-compatible VoIP service, such as your office VoIP server, Skype Connect or an IP Telephony Gateway appliance to bridge to a standard phone line (not included).

Examples of an IP Telephony Gateway appliance include:

- Atcom IP02/IP04 (the number indicates the phone lines. Ignition can only use 1 line at a time)
- Grandstream HT-503
- GXW410x (It is the FXO port that connects to the phone line)

OPC COM Module



Connect to Legacy Devices

The OPC COM module offers Ignition the ability to connect to legacy ("classic") COM-based OPC DA servers. It supports OPC DA 2.0 and 3.0.

NOTE

The [OPC Com Tunneller module](#) simplifies connecting to remote OPC-COM servers.

Connecting to Classic OPC Servers

With the OPC-COM module installed, there will be a new option for COM-based OPC servers when creating a server connection in the Gateway. The OPC-COM module is primarily intended for use with local OPC servers, although it also provides basic support for remote connections.

Even when connecting locally, the application may run into the traditional difficulties of connecting to Windows based OPC servers. DCOM security settings on the machine can interfere with connections, and the OPC Core Components package (from the [OPC Foundation](#)) must be properly installed before connections can be established.

Using Data from Classic OPC Servers

After a connection to a server has been defined, the server will appear along side of other OPC servers (both COM and UA based) in the OPC Tag Browser. You can use these tags like any others - bring them into Ignition's Tag Browser, use them in Transaction Groups, and so on.

OPC COM Tunneller Module



Create Remote Connections through OPC-UA



Knowledge
Base

OPC Com Tunneller

Learn how to configure the OPC Com Tunneller module.

[Link to Knowledge Base Article](#)

Simplify COM Connections

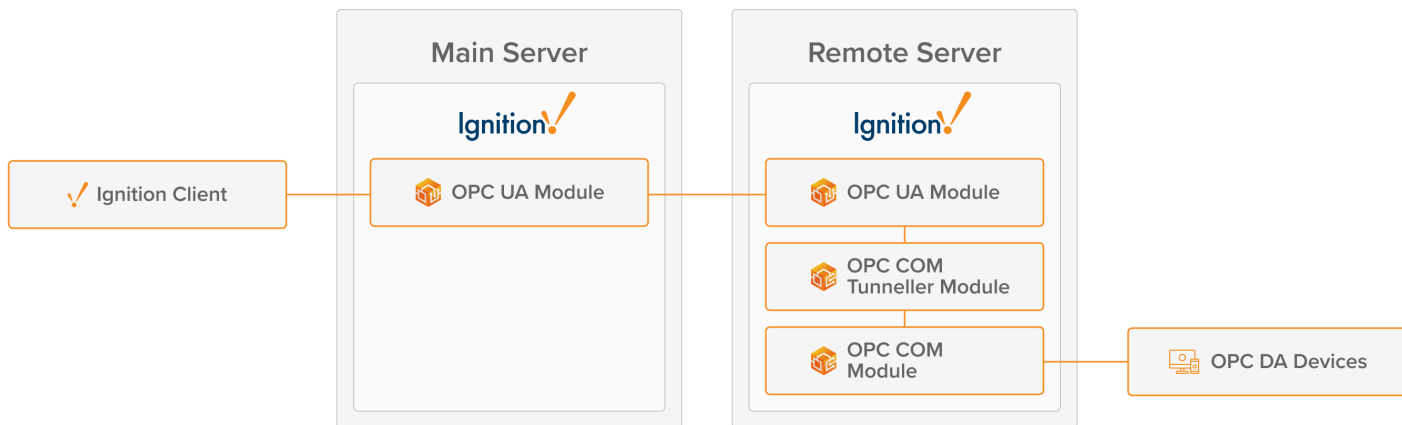
The OPC COM Tunneller module allows you to access remote OPC COM servers over the network without using Remote DCOM. It exposes local COM connections to Ignition's OPC UA server, so OPC UA clients can access them using modern protocols.

NOTE

The OPC COM Tunneller module requires the OPC COM module to be installed and licensed.

Modernize COM Servers

The module manages the COM connection internally and translates it into the OPC UA protocol. This enables secure communication using TCP, with support for encryption and authentication, and simplifies access to legacy COM servers.



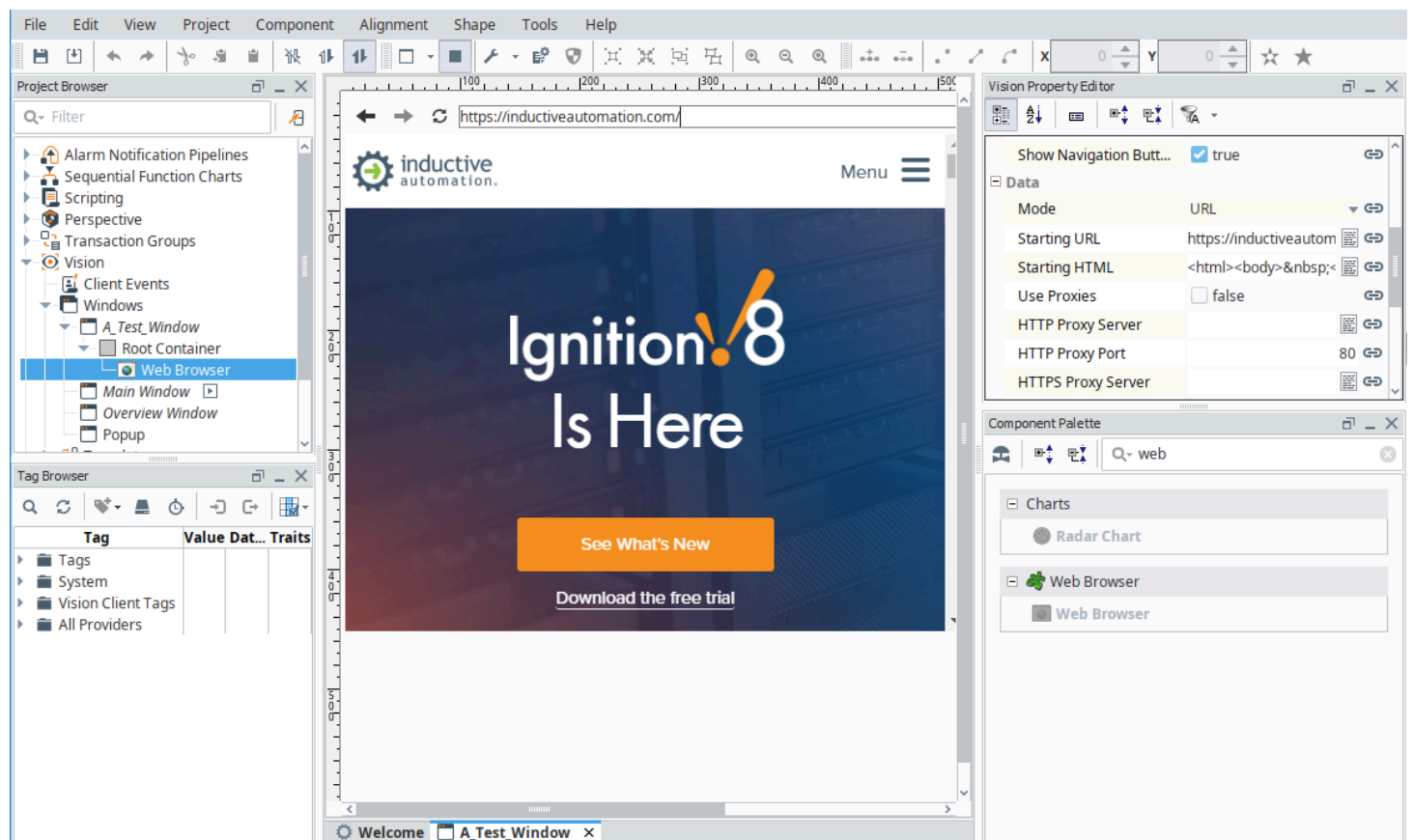
Web Browser Module



Access the Web Directly From a Client

The Web Browser module adds a web-browser component to the Vision module. This component allows you to embed other webpages from the internet or from your local intranet inside of your projects. The browser is based on the open source project Chromium, and supports modern web technology such as HTML5, CSS, and Javascript.

More information on the Web Browser Module can be found on the [Web Browser Component](#) page.



Twilio Alarm Notification



Send SMS Messages through Scripts

The Twilio Alarm Notification module adds integration with Twilio via an SMS Alarm Notification Profile. Send SMS alarm notifications without a physical device. This module unlocks the `system.twilio` functions. These allow you to send SMS messages via a python script. See the [system.twilio](#) section of the appendix for more details.

Avoid the Hardware Hassle

The Twilio Integration and Alarm Notification module does not require additional hardware, so there is no need to worry about firmware updates or hardware failure.

More information on using the Twilio Integration and Alarm Notification module can be found on the [Twilio SMS Notification](#) page.

NOTE

The Twilio Alarm Notification module requires that the Alarm Notification module is also installed on the same Gateway.

Serial Modules



Serial Support

The Serial Module adds serial comm support and `system.serial` functions to python scripts. These functions allow you to open, read from, write to, and close serial ports. More information on these functions can be found in the [system.serial](#) section of the appendix.

Multiple Scopes

There are two variants of the Serial module. Both perform similar functionality, but at different scopes:

- The Serial Support Client module allows the `system.serial` functions to be accessed from client based scripts, as well as connect to serial devices plugged into the computer running the client.
- The Serial Support Gateway module allows the `system.serial` functions to be accessed from gateway based scripts, as well as connect to serial devices plugged into the Gateway server.

SECS/GEM Module



Communicating with Semiconductor Fab Equipment

Ignition's SECS/GEM module is a highly specialized module that provides the ability to communicate with semiconductor fab equipment using the SECS-II, GEM, and HSMS standards. The SECS/GEM module is implemented as a host that can talk to one or more fab tools via equipment connections configured within the Ignition Gateway. It also provides the capability to create and configure equipment simulators that can be used for testing applications which is a big plus when getting started with the SECS/GEM module. Connections are made over Ethernet using TCP/IP (HSMS protocol) or over a direct serial connection (SECS-I protocol) using a RS-232 cable. Once installed, the SECS/GEM functionality is fully integrated into the Configure section of the Gateway webpage where you can configure connections to the equipment, and set up equipment simulators.

The SECS/GEM module provides the framework to create and configure a common set of scripting functions to control equipment behavior and communication capabilities that monitor and support semiconductor manufacturing equipment. Through scripting, it provides the flexibility to start and stop equipment processing, set equipment configuration parameter values, collect data, send alarms to the host, and select recipes, as long as the host and OEM adhere to SECS/GEM standards.

Communication between Ignition and the equipment is in the form of SECS messages defined by the SECS-II standard. SECS messages are typically sent and received using scripting functions within Ignition using the SECS/GEM defined messages (SECS Definition Language (SDL)) that are loaded into the equipment. SECS messages that contain data can also be written to Tags, updating the Tag's values as new messages come in. This functionality is used to capture data coming back from equipment, such as tool traces within S6F1 messages. The default SDL file that is included with the SECS/GEM module is already configured to create Tags for S6F1 messages sent to the module from the tool. For other messages, the SECS/GEM module can be configured to update Tags by adding some additional parameters to the equipment's SDL file.

To learn more, refer to the [SECS/GEM](#) section.

Connector Modules

Connector modules expand Ignition's functionality, allowing users to connect to NoSQL databases such as MongoDB.

MongoDB



Allows you to connect Ignition to a NoSQL MongoDB instance.

MongoDB Connector



Easy and Responsive NoSQL Option

The MongoDB Connector allows you to connect Ignition to MongoDB, which is a scalable, document-oriented NoSQL database. Many existing features in Ignition, such as the Tag system, Python scripting system, and Perspective data are compatible with document-style data, making MongoDB integration into Ignition seamless and easy.

This connector is a part of a series of modules called Cloud Connectors. Cloud Connectors are bundled with Ignition Cloud Edition, as they leverage technology frequently associated with cloud-based architectures. Additionally, standard versions of Ignition will also be able to take advantage of the MongoDB Connector's features as a module add-on. The MongoDB Connector is not available for Ignition Edge or Ignition Maker Edition.

MongoDB Connection Management

Connect to specific collections hosted on MongoDB by specifying connection schemes, hosts, and properties, along with a username and password for authentication. Enabling and disabling connections is possible and simple with just a toggle. You can also view connectivity status and obtain diagnostic information through the Gateway webpage's Status UI.

Write and Query Data

Modify and view data with easy-to-use system functions that allow you to perform a range of actions, such as inserting data, updating data, deleting data, and more. The **`system.mongodb`** functions also utilize Ignition's scripting autocomplete feature, making these functions simple and straight-forward to use.

Enhance Your Perspective Experience

The MongoDB Connector adds a new **binding type** to Perspective components. Aptly named MongoDB, this binding type makes it easier to query data from your collections and integrate the results into your Perspective project. Users can choose between Find, FindOne, or Aggregate query types, making MongoDB bindings versatile and adaptable to many situations.

Want to Learn More?

For more information on the MongoDB Cloud Connector, see the [MongoDB](#) page.

Startup Guide

When getting started with Ignition, it helps to have a general idea about the major steps involved in designing your SCADA/HMI projects. Although there are many creative and innovative ways of using Ignition to do almost anything you want, we outlined some simple steps that can guide you in setting up a project. In very little time, you can get a sample project up and running.

1. Download and Install Ignition

This page explains how to download and install Ignition.

2. Launch the Gateway

The Ignition Gateway is a web server. When it is running, you can access it through a web browser in just a few st...

3. Connect to a Device

Ignition can connect to many different devices natively with the built-in OPC-UA Server.

4. Connect to a Database

After you install your database, you can connect it to Ignition. Alternatively, you can have Ignition create an intern...

5. Open the Designer

Now that you set up a device (Connect to a Device) and database (Connect to a Database) connections, let's open...

6. Create Tags

With the Designer open, a great first step is to create some Tags. Once there, Tags are all configured in the Tag Br...

7. Add History to Tags

Storing history for your Tags is simple, and once that's done we can display it on screen in a variety of ways. If yo...

8. Add Components - Perspective Session

1. Download and Install Ignition

This page explains how to download and install Ignition.

ⓘ BEFORE YOU INSTALL IGNITION, MAKE SURE YOU MEET THE MINIMUM SYSTEM REQUIREMENTS:

- Dual-Core Processor (32 or 64 bit)
- 4GB RAM
- 10GB free HD space

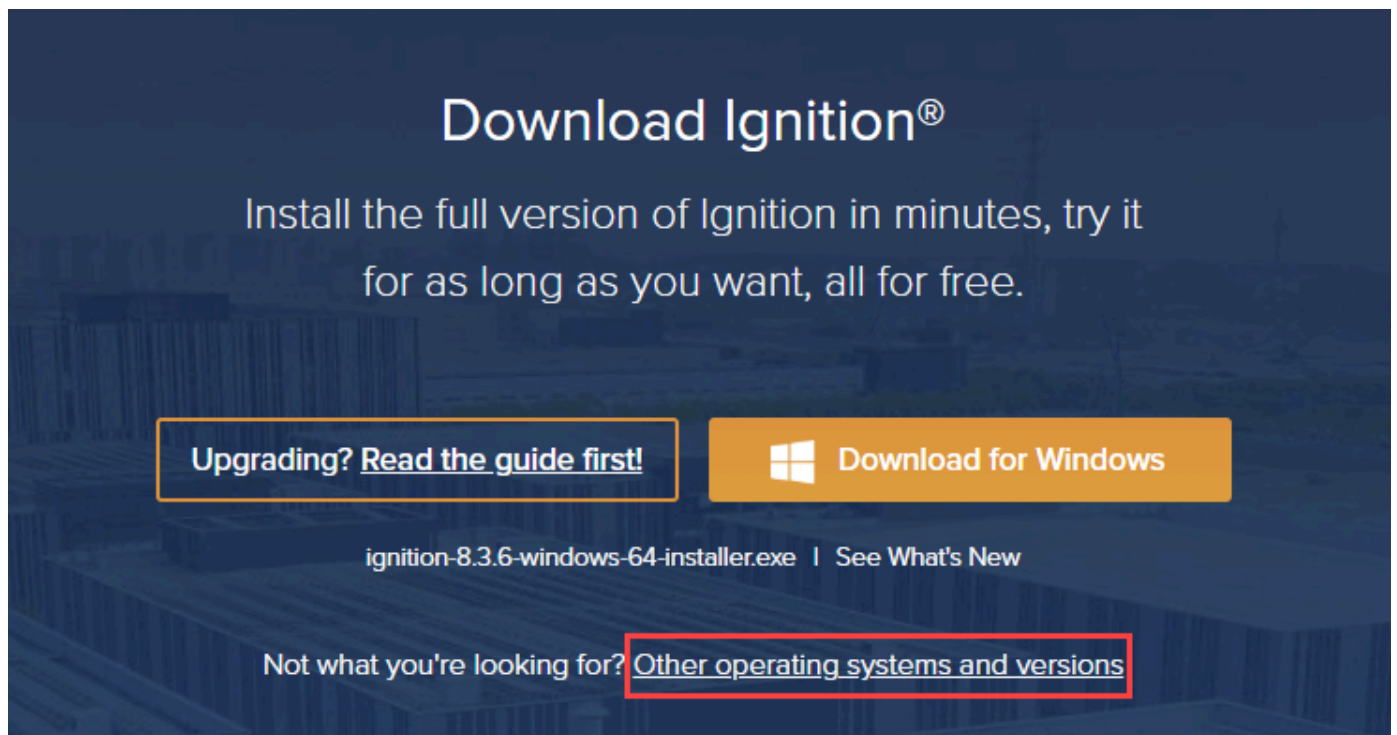
Also, ensure you have Administrator privileges to run the Ignition installer.

To Download and Install Ignition on Windows

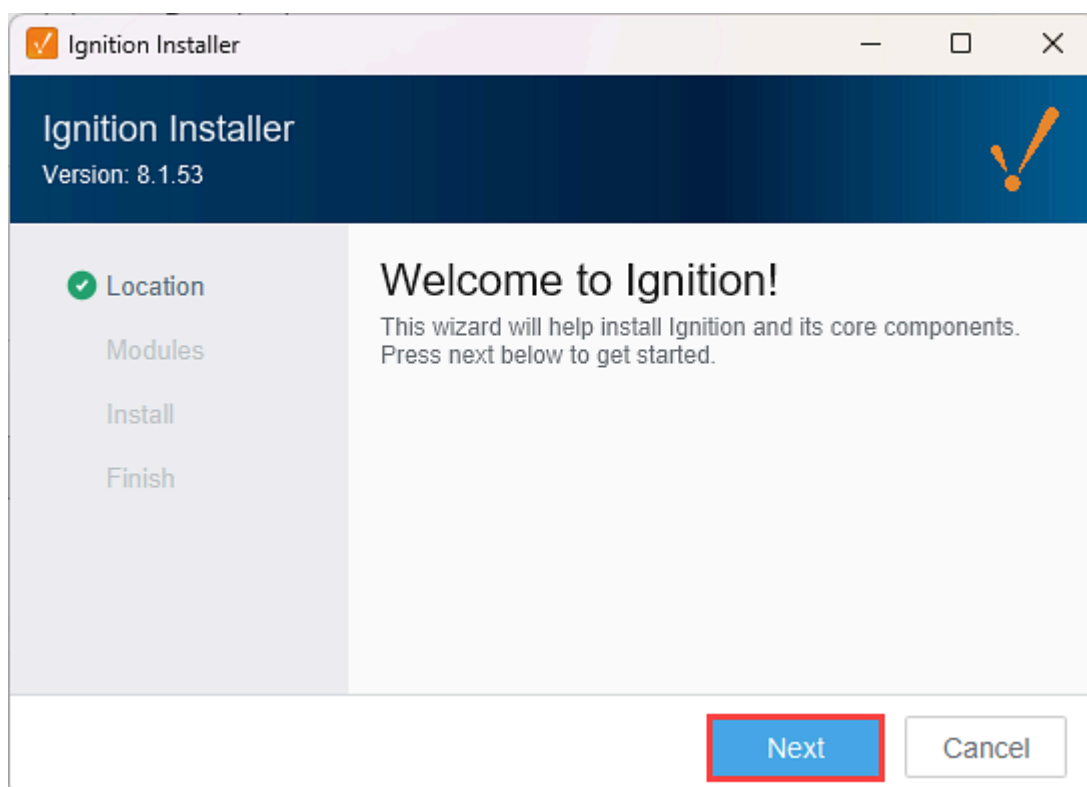
The following process walks through the basic steps of installing Ignition on Windows, starting with how to download directly from the Inductive Automation website. At any time during the example that you want to change any selections, you can use the **Back** option to return to the previous screen.

More detailed information about installation, and the subsequent upgrade process, can be found on the [Installing and Upgrading Ignition](#) page.

1. Open the Inductive Automation website, www.inductiveautomation.com, in your browser.
2. Select **Download Ignition** in the upper-right corner of the page.
3. The browser will determine what operating system you're running and list the applicable download option with the latest major version, which in this case is not 8.1. Click the **Other operating systems and version** link to access 8.1 versions.

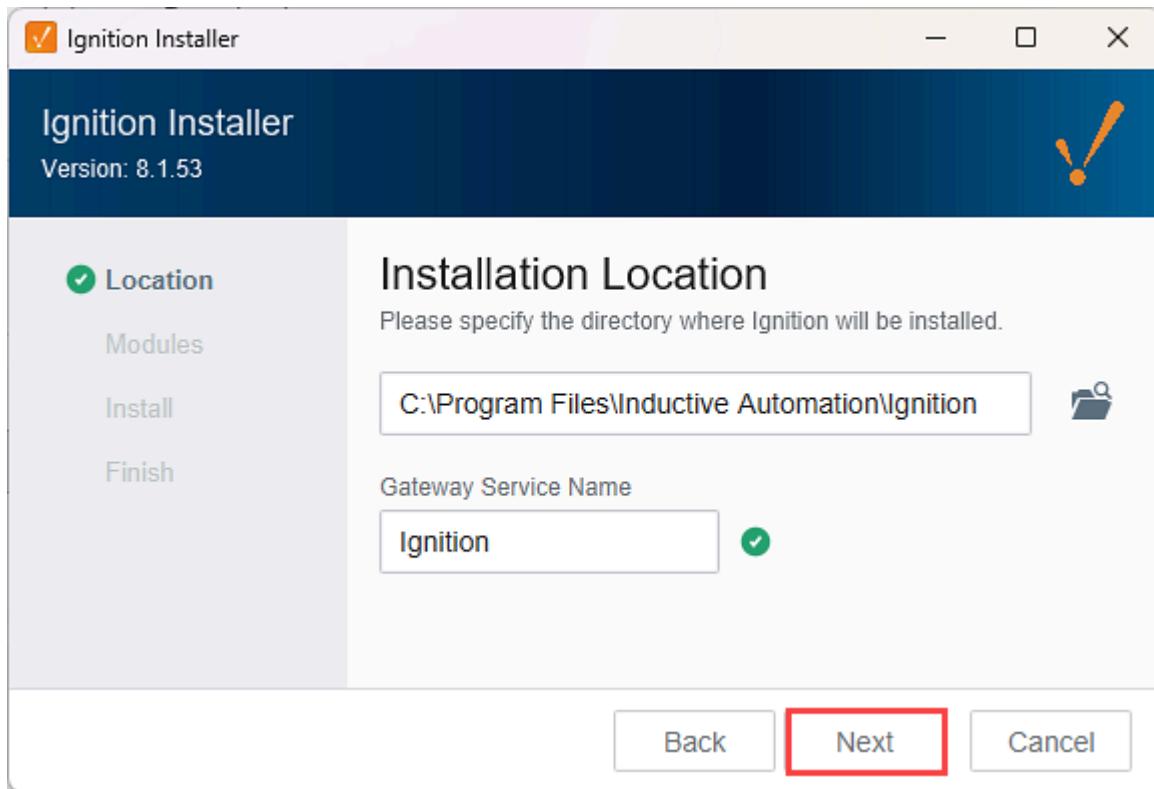


4. Use the dropdown on the main page to select the latest 8.1 version, or select the **Version Archives** tab to locate a specific 8.1 minor version.
5. Click the **Windows Installer** link for your desired version to start the download.
6. Run the downloaded `Ignition-X.X.X-windows-x64-installer.exe` file. This file can be found in your Downloads folder or on the lower-left of your browser if you're using Chrome.
7. The Ignition install wizard opens. Click **Next** to begin.



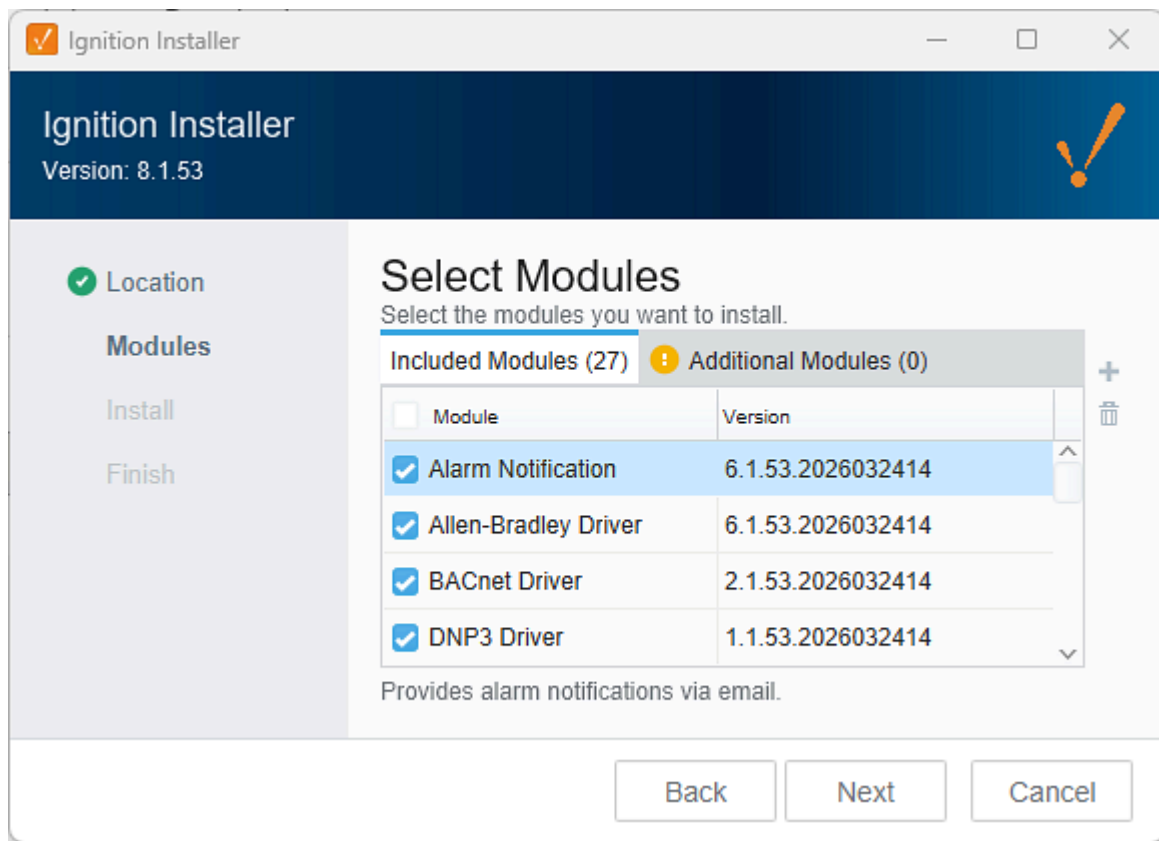
8. By default, Ignition is installed under your Program Files folder: `Program Files\Inductive Automation\Ignition`. You can enter another location as desired by clicking the folder on the right to browse folder locations. Additionally, you can accept the default Gateway Service Name or enter another name.

9. Click **Next**.

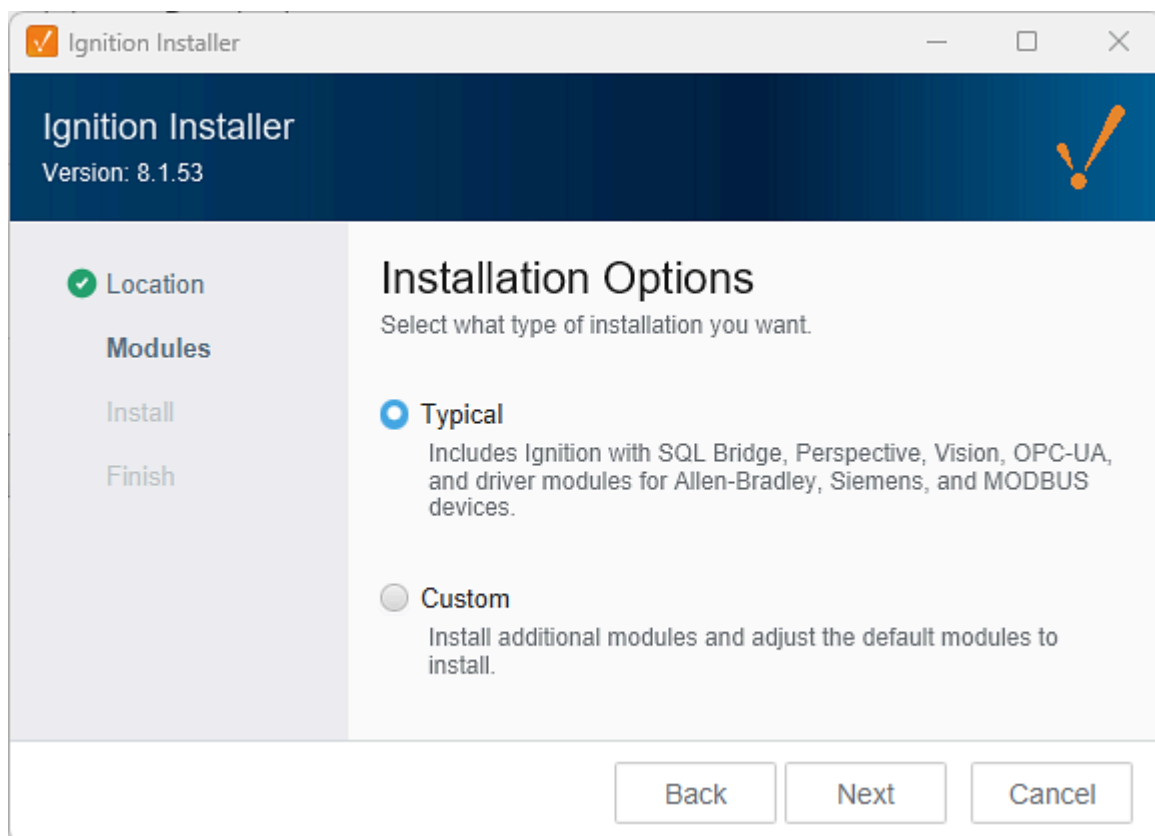


10. On the **Installation Options** page, select **Typical** or **Custom** mode.

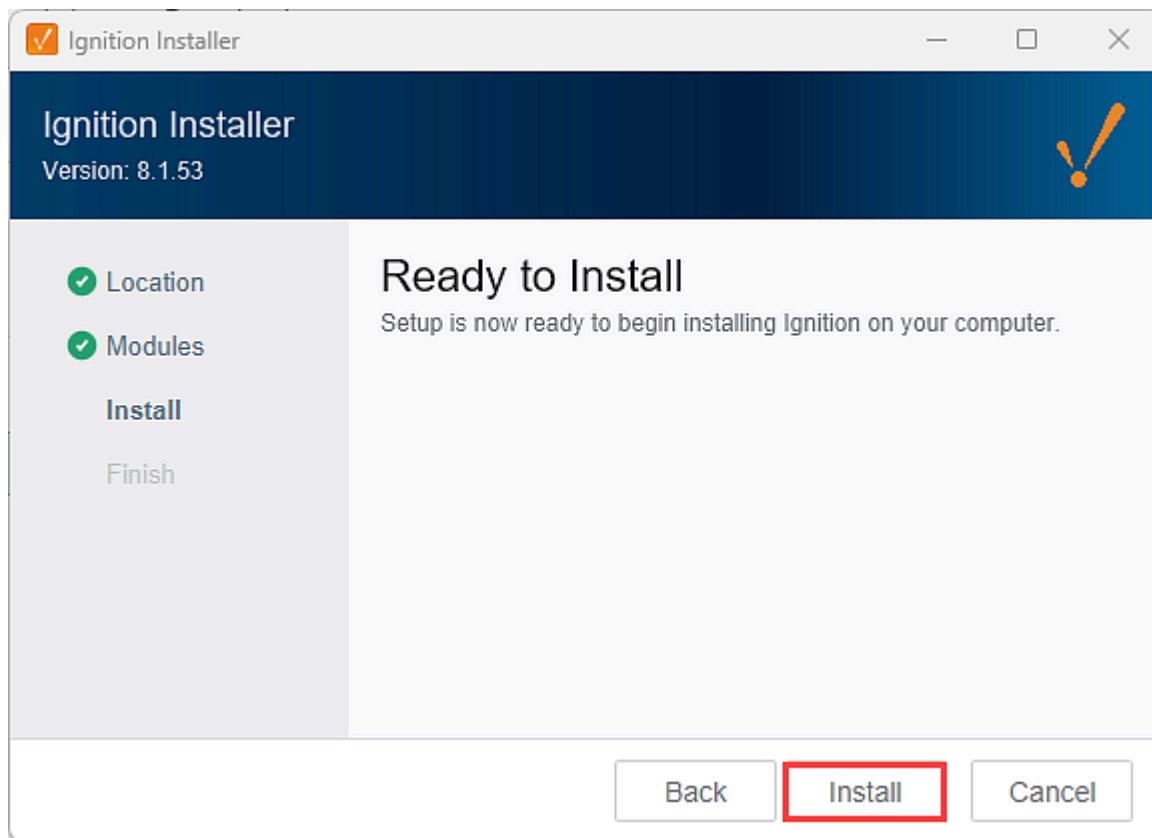
- **Typical**: The Typical installation includes Ignition with all of the HMI/SCADA modules. The only modules that are not installed by default are the MES modules.
- **Custom**: The Custom installation lets you individually select the modules that you want installed. To see a brief description of the module, click on the module name.



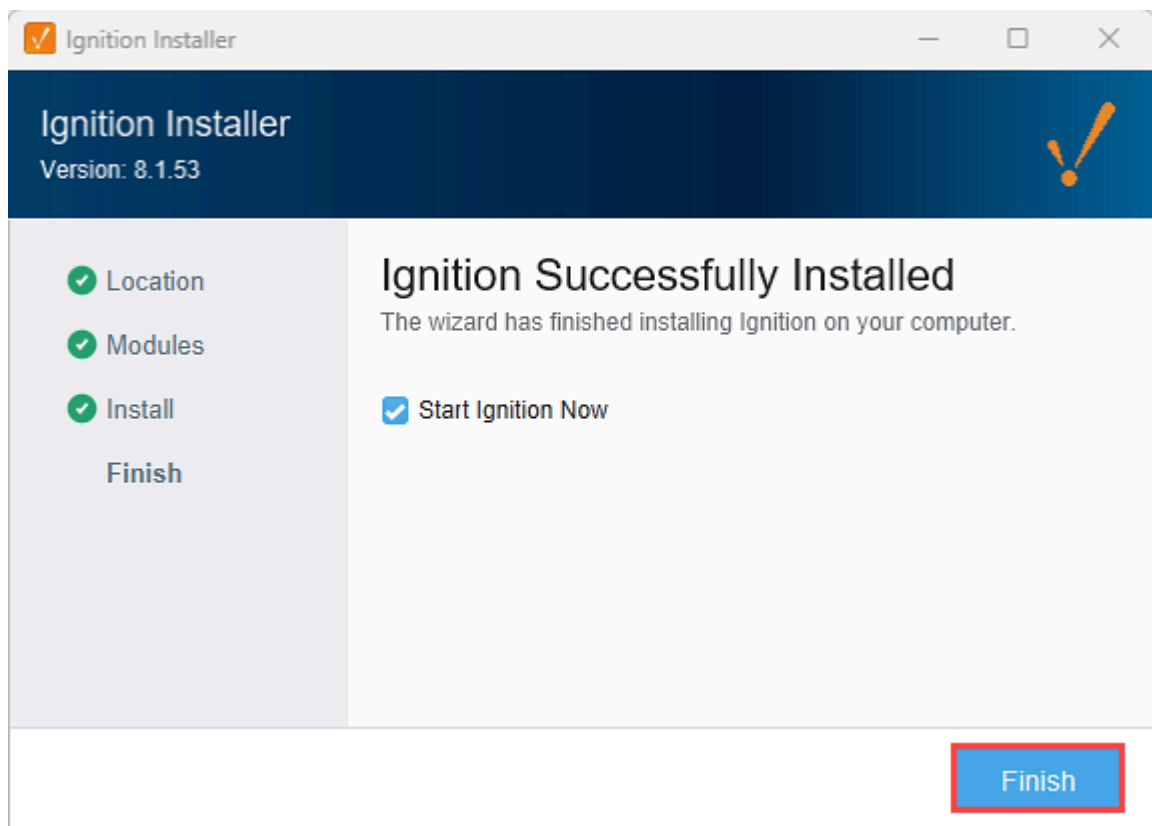
11. For this example, select **Typical** and click **Next**.



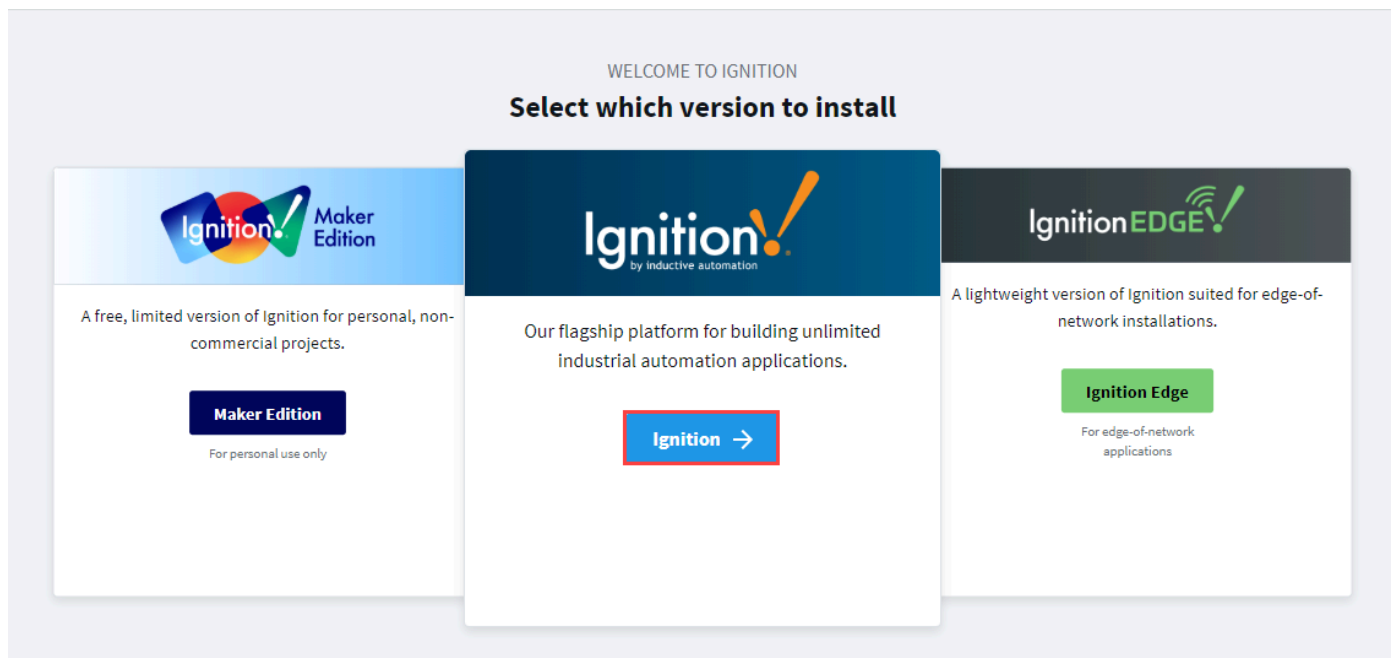
12. Click **Install** to install Ignition based on the selections you've made.



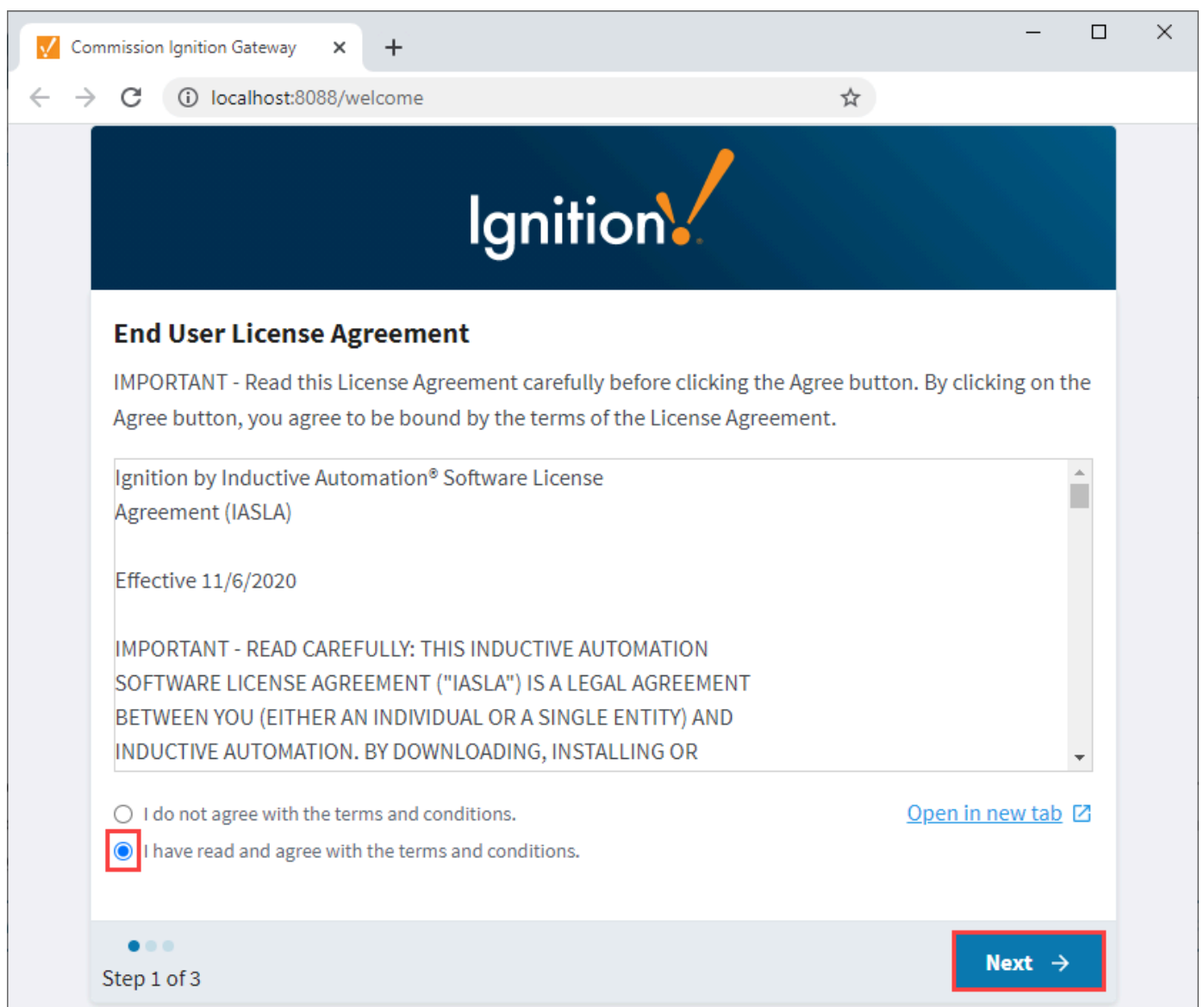
13. Once the Installer window shows that the Ignition installation is successfully installed, make sure that the checkbox for **Start Ignition Now** is selected, then click **Finish**.



14. Once Ignition is installed, you will be greeted with a **Welcome to Ignition** screen in your browser that will ask you to choose a version to install. Select **Ignition**.



15. The End User License Agreement (EULA) window will be displayed. Fill in the confirmation that you have read and agree with the terms and conditions. Click **Next**.



16. An Account Setup window will open for you to enter your first user. This first user will be the main/administrator account with full privileges in Ignition. Enter a **username** and **password**

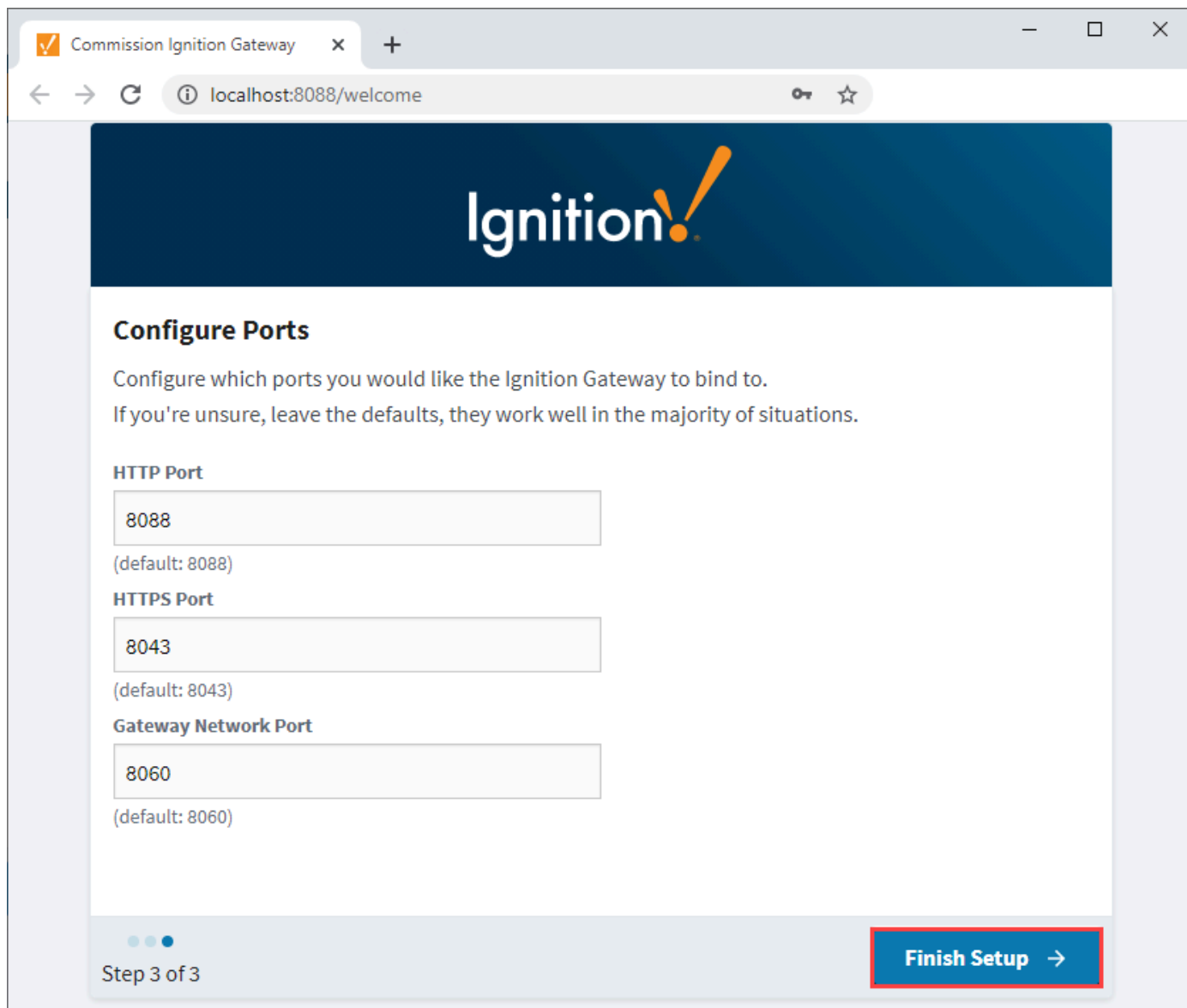
CAUTION

Remember the credentials you typed in this step. You'll need them later to access the Gateway's web interface and the Designer.

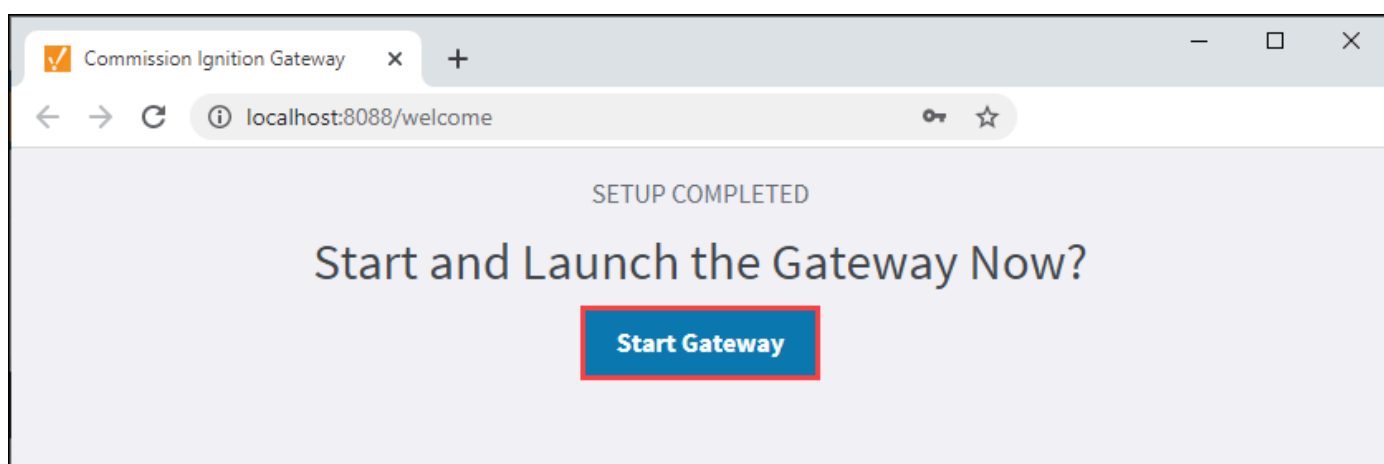
17. Click **Next**.

The screenshot shows a web browser window titled 'Commission Ignition Gateway' with the address bar displaying 'localhost:8088/welcome'. The main content area has a dark blue header with the 'Ignition!' logo. Below the header, the section is titled 'Create a User'. A message states: 'Take a moment to create your first user account. This user, by default, will have access to full Administrative privileges in Ignition. This can all be edited later in the Gateway.' There are three input fields: 'Username' (containing 'admin'), 'Enter Password' (masked with dots), and 'Confirm Password' (masked with dots). A tooltip for the Username field reads: 'Must start with a letter or digit and contain only letters, digits, spaces, underscores, @, periods or dashes. Must be 2-50 characters.' At the bottom left, it says 'Step 2 of 3'. At the bottom right, there is a blue button labeled 'Next' with a right-pointing arrow, which is highlighted with a red rectangle.

18. The HTTP Configuration window will open for you to configure the HTTP, HTTPS Ports, and Gateway Network Port. The default HTTP Port is 8088, the default HTTPS Port is 8043, and the default Gateway Network Port is 8060. Commissioning will check the default ports for their availability. If no ports are available, the Gateway will iterate that port number until one is found that is available.
19. Click **Finish Setup**.



20. The Setup Completed window will be displayed, and now you can click **Start Gateway**. This may take a few minutes to finish.



Your Ignition installation is complete and the Gateway is launched. Your web browser opens the Gateway Home page at <http://localhost:8088>. Sign in using the credentials for the user you created in Step 16.

WELCOME

Meet Ignition



Build It

Get the Designer

The Designer brings all your data, systems, and developers together into one beautifully simple, integrated development environment specifically designed to help you build industrial applications more quickly.


[Download Designer Launcher](#)

Run It

Vision Client Launcher

Download the Native Client Launcher to open Vision clients from any Ignition Gateway.


[Download Vision Client Launcher](#)

Perspective Workstation

Download Perspective Workstation to open sessions from any Ignition Gateway.


[Download Perspective Workstation](#)

Perspective Session Launcher

Launch a Perspective session directly in your browser or download the native application.


[View Projects](#)

NOTE

Ignition installs as a Window Service, so it starts automatically when your computer starts up. You can find it in the Control Panel under **Windows Tools > Services > Gateway**.

2. Launch the Gateway

The Ignition Gateway is a web server. When it is running, you can access it through a web browser in just a few steps.

If you're not already logged into Ignition, enter the credentials for the administrator or user with full privileges for the Gateway. The default login credentials for the Gateway are username: **admin** and password: **password**.

1. Figure out the IP address of the computer you installed Ignition on. If this computer is the one Ignition is installed on, then you can use **localhost** instead of the IP.
2. Open up a web browser and go to the Gateway's webpage: <http://localhost:8088>. If the Gateway is installed on a different server/computer, then you'll need to know the IP address or host name. Example: <http://ipaddress:8088>.



Help 

Get Designer



Home

Home > Get Started



Status



Config

Trial Mode 1:55:17 We're glad you're test driving our software. Have fun.

Activate Ignition

WELCOME

Meet Ignition



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Download Designer Launcher

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Vision Client Launcher

Download the Native Client Launcher to open Vision clients from any Ignition Gateway.



Download Vision Client Launcher

Perspective Workstation

Download Perspective Workstation to open sessions from any Ignition Gateway.



Download Perspective Workstation

Perspective Session Launcher

Launch a Perspective session directly in your browser or download the native application.



View Projects

NOTE

The first time you go to the Gateway webpage, it shows you the links to download the Designer, Vision Client Launcher, Perspective Workstation, and Perspective Session Launcher.

3. To navigate back to the Gateway Homepage, click the **Home** button.



Home

3. Connect to a Device

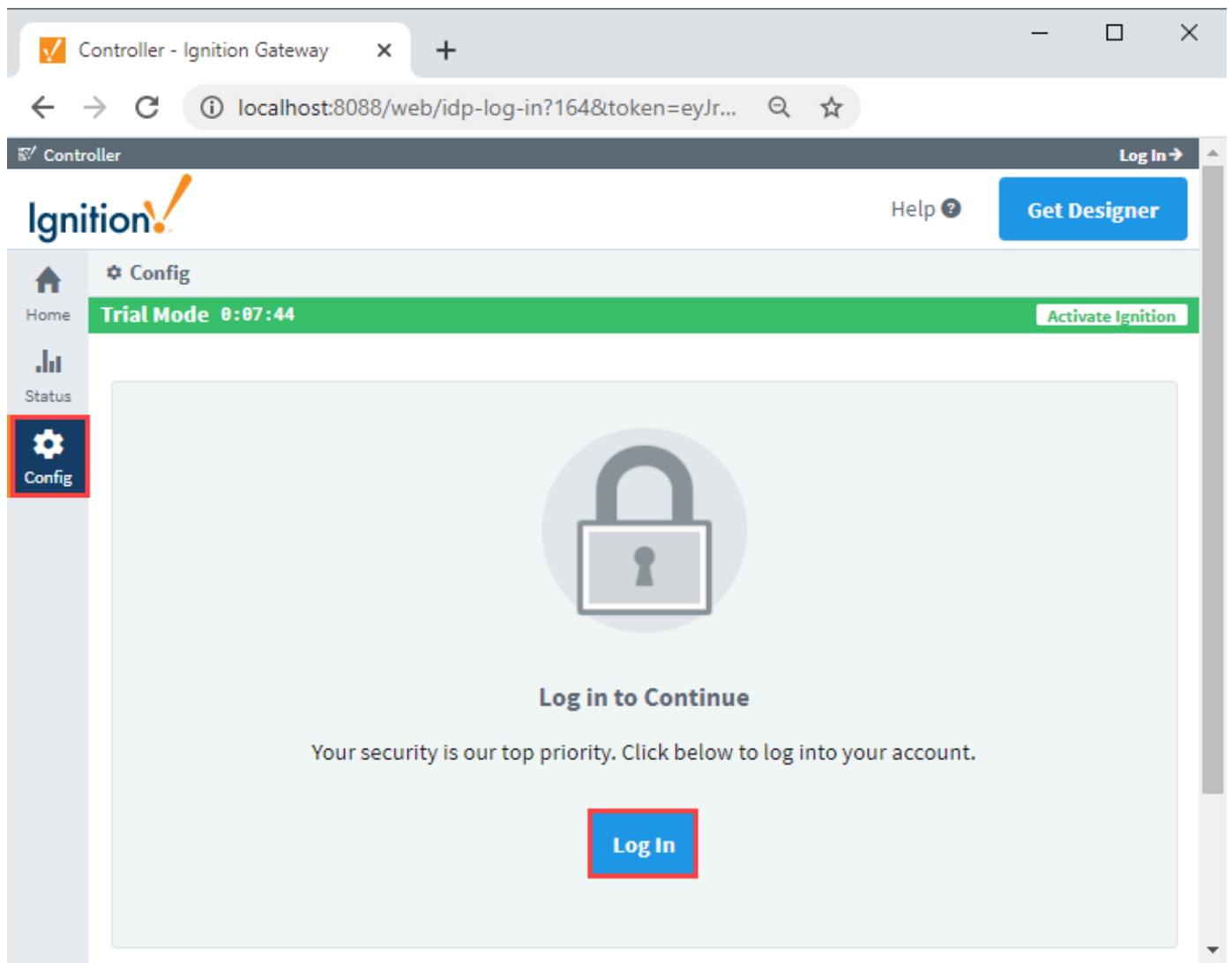
Ignition can connect to many different devices natively with the built-in OPC-UA Server.

- [Allen Bradley Ethernet](#)
- [Modbus](#)
- [Siemens](#)
- [UDP and TCP Driver](#)
- [DNP3](#)
- [Programmable Device Simulator](#)
- [Third Party OPC Servers](#)

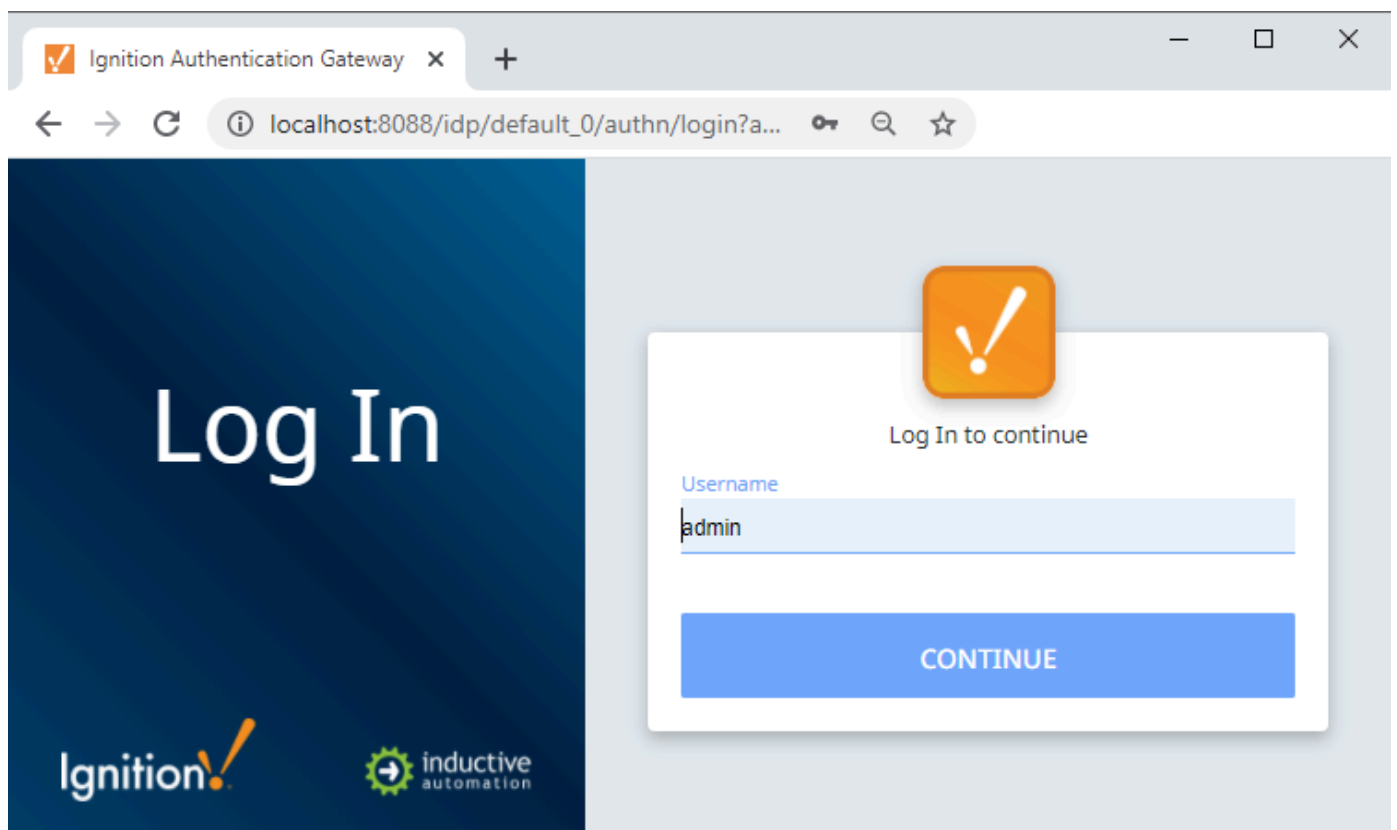
With the Ignition OPC UA module and device drivers installed, connecting to a device is simple.

With the Ignition OPC UA module and device drivers installed, connecting to a device is simple. The Programmable Device Simulator, as described below, includes Generic, Dairy and SLC simulator programs. Furthermore you can modify the existing programs to provide custom data points. It provides functionality that allows you to create your own simulator program with outputs you define. For more in depth information, refer to the [Programmable Device Simulator](#) page.

1. If you are not already logged in to the Gateway webpage, click on the **Config** tab and press the **Log In** button.

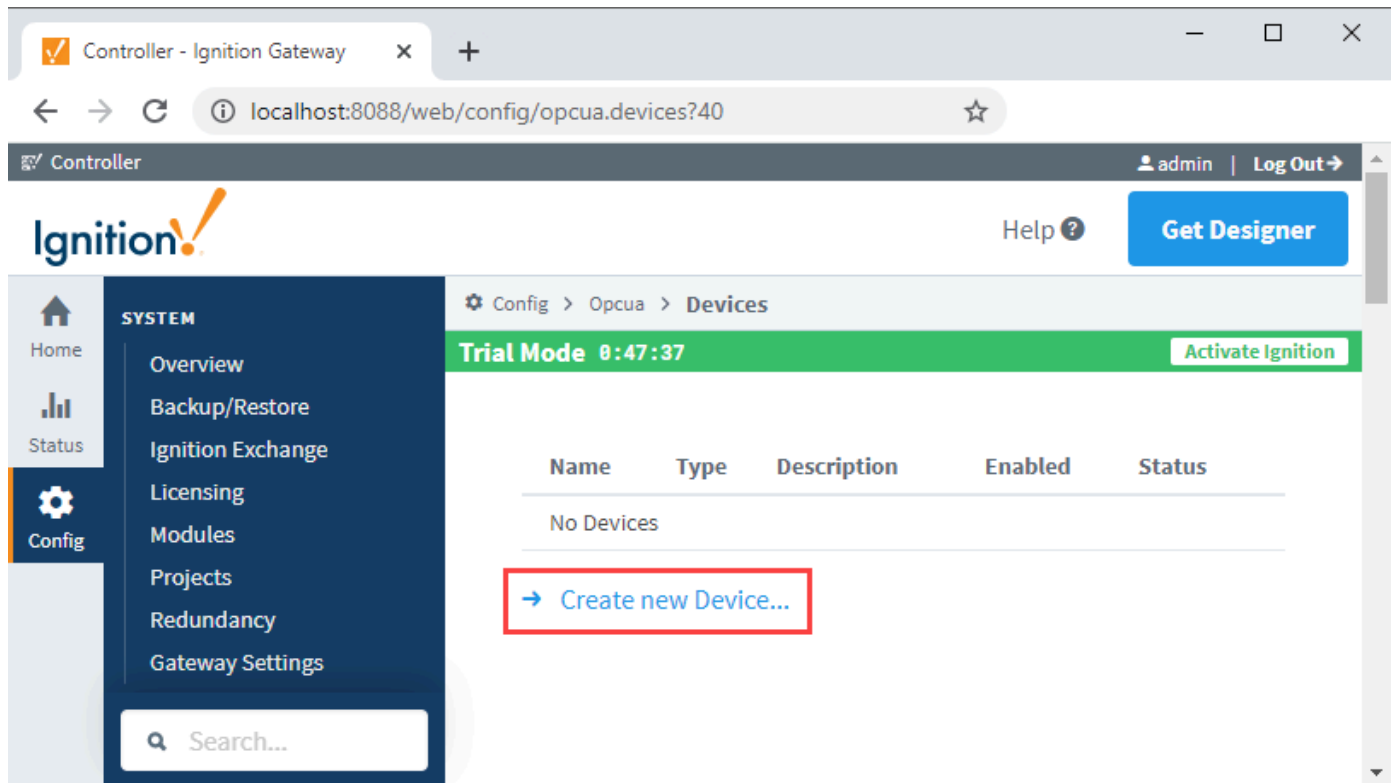


2. Enter the credentials and password for the administrator or user with full privileges for the Gateway.

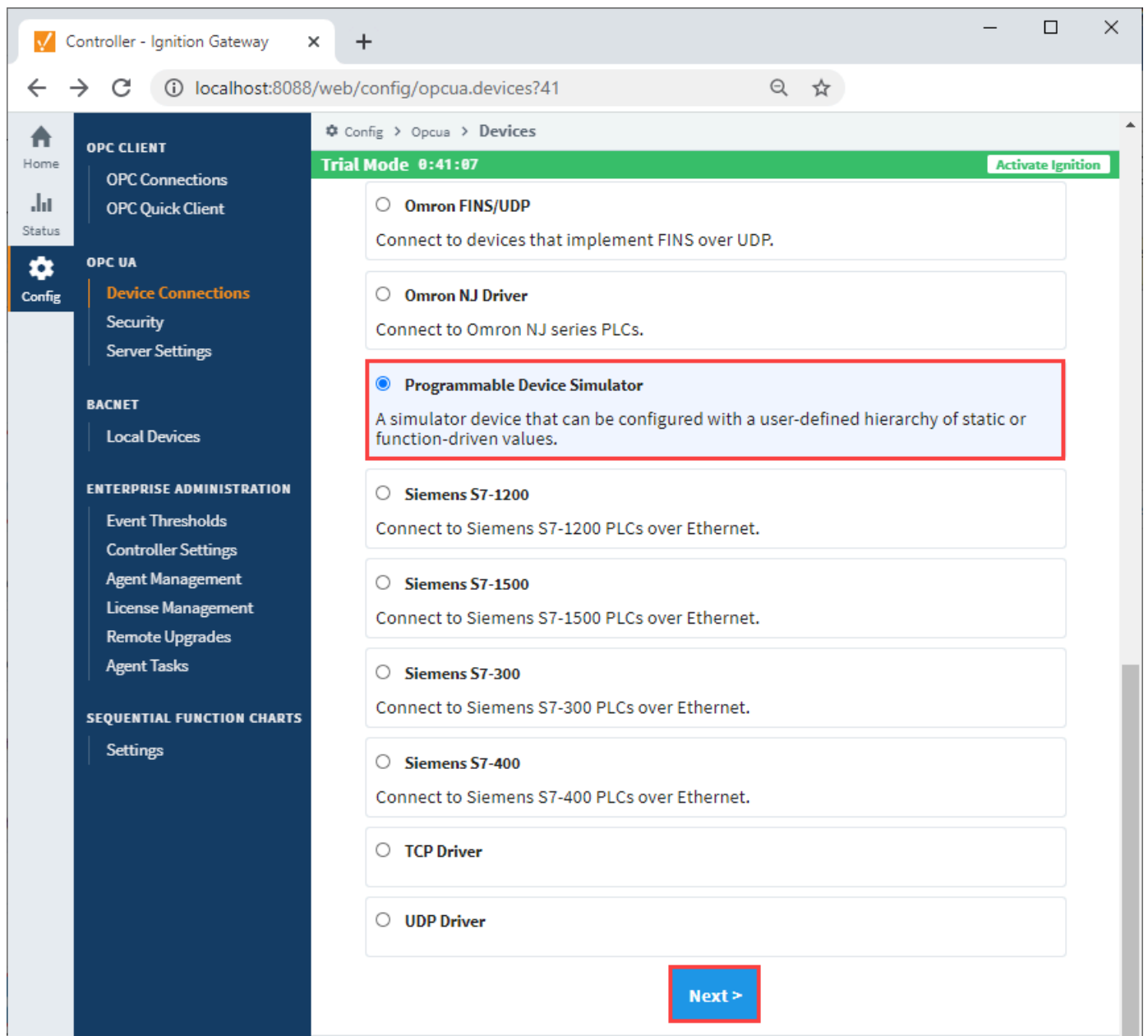


3. Scroll down to the **OPC UA** section on the left to **Device Connections**.

4. To add a new Device Connection, click the **Create new Device...** link.



5. Select **Programmable Device Simulator** and click **Next**.



6. Give the new connection a name and click **Create New Device**.

Controller - Ignition Gateway

localhost:8088/web/config/opcua.devices?169

Controller admin | Log Out

Ignition

Help Get Designer

Config > Opcua > Devices

Trial Mode 1:58:33 Activate Ignition

General

Name	Generic
Description	
Enabled	☒ (default: true)

Simulator Program Settings

Repeat Program	☒ (default: true)
Base Rate (ms)	1000 (default: 1,000)

Create New Device

7. The window will refresh and you'll see your device was successfully created with a status of Running. Now you can select the program for the simulator by clicking **More > edit program**.

Controller - Ignition Gateway

localhost:8088/web/config/opcua.devices?127

Controller admin | Log Out

Ignition

Help Get Designer

Config > Opcua > Devices

Trial Mode 0:41:33 Activate Ignition

Successfully created new Device "Generic"

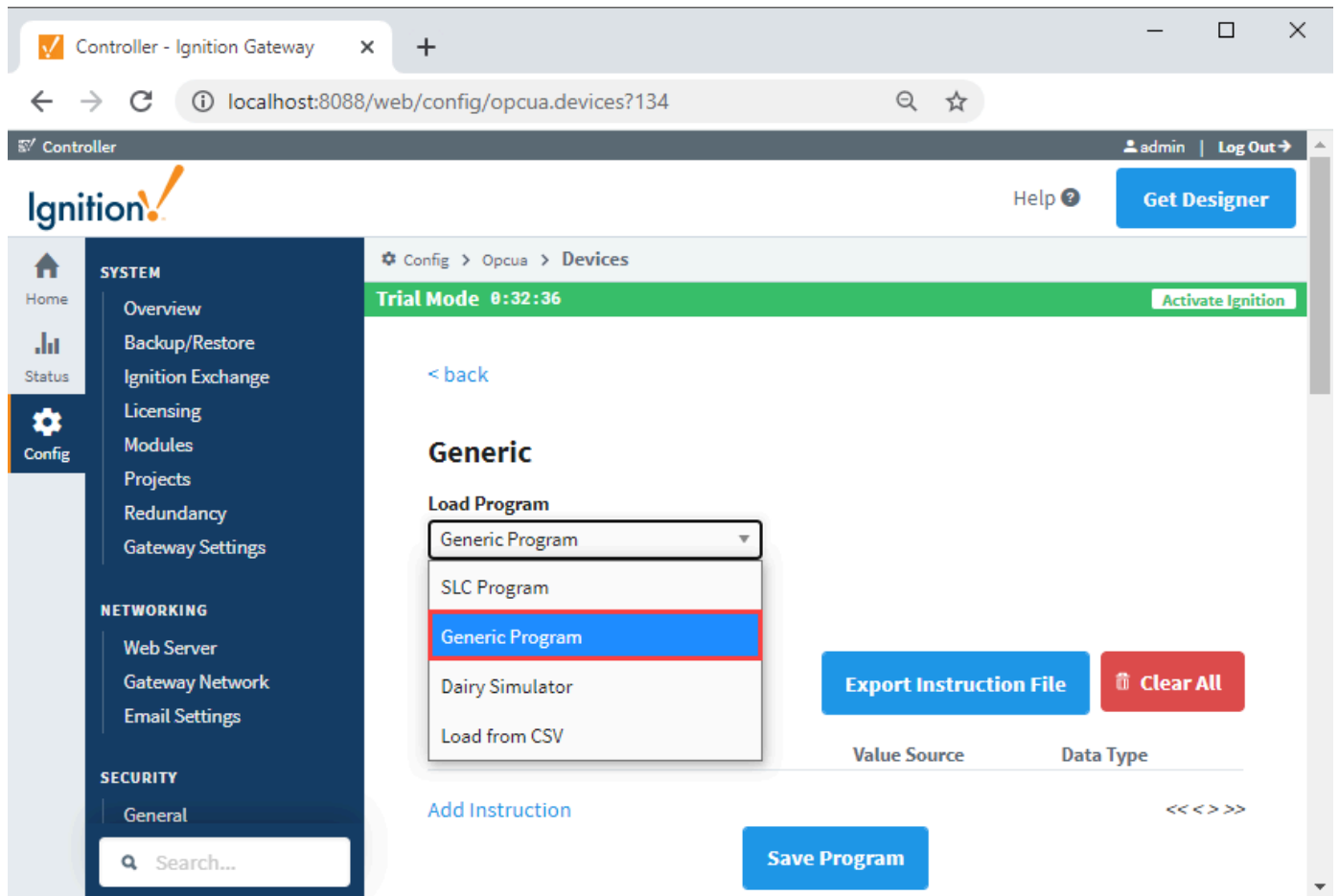
Name	Type	Description	Enabled	Status	
Generic	Programmable Device Simulator		true	Running	More edit

Create new Device...

edit program

delete

8. From the **Load Program** dropdown, select a program (i.e., Generic Program) and click the **Load Simulator Program** button.



9. You will see a number of instructions which expand multiple pages. This is how the simulator creates Tags and sets their values. Click the **Save Program** button at the bottom of the page.

Controller - Ignition Gateway

localhost:8088/web/config/opcua.devices?139

Config > Opcua > Devices

Trial Mode 0:30:09 [Activate Ignition](#)

< back

✓ Program loaded successfully.

Generic

Load Program
Generic Program

[Load Simulator Program](#)

[Export Instruction File](#) [Clear All](#)

Time Interval	Browse Path	Value Source	Data Type	
0	Ramp/Ramp0	ramp(0.0, 10.0, 100.0, true)	Double	Remove
0	Ramp/Ramp1	ramp(5.0, 123.0, 230.0, true)	Double	Remove
0	Ramp/Ramp2	ramp(1.0, 2.0, 50.0, true)	Double	Remove
0	Ramp/Ramp3	ramp(-10.0, 10.0, 300.0, true)	Double	Remove
0	Ramp/Ramp4	ramp(0.0, 500.0, 1500.0, true)	Double	Remove
0	Ramp/Ramp5	ramp(0.0, 700.0, 2000.0, true)	Double	Remove
0	Ramp/Ramp6	ramp(0.0, 800.0, 2500.0, true)	Double	Remove
0	Ramp/Ramp7	ramp(0.0, 900.0, 3000.0, true)	Double	Remove
0	Ramp/Ramp8	ramp(0.0, 110.0, 3500.0, true)	Double	Remove
0	Ramp/Ramp9	ramp(0.0, 5000.0, 4000.0, true)	Double	Remove
0	Random/RandomBooleans	random(0.0, 1.0, true)	Boolean	Remove

10. You have the option to modify the program before or after saving if you want to change some of the functionality. If you want to add an instruction, click the **Add Instruction** link under the last instruction on the screen. You can also **Remove** the instruction if necessary.

To learn more, go to the [OPC UA](#) and [Devices](#) pages.

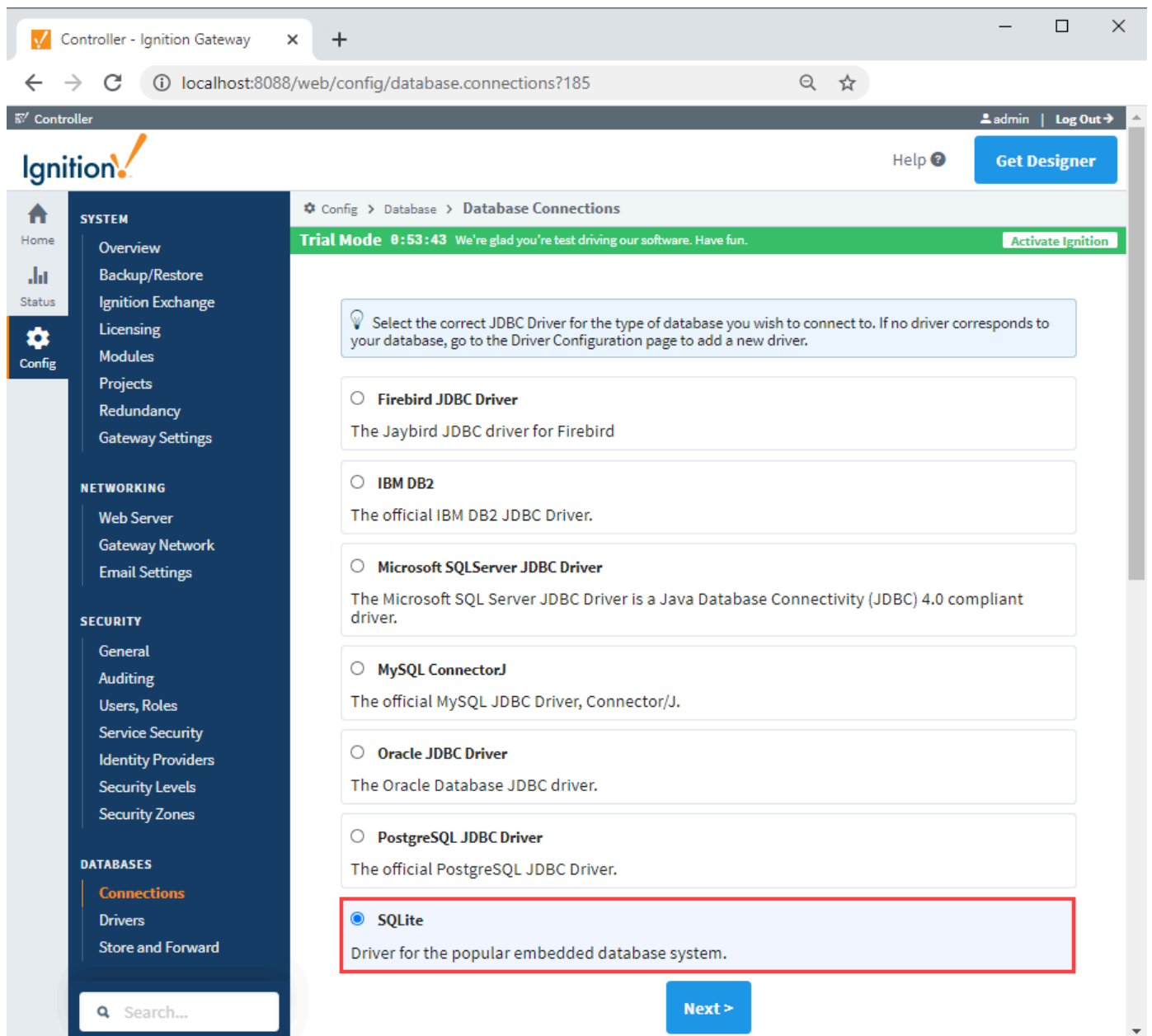
4. Connect to a Database

After you [install your database](#), you can connect it to Ignition. Alternatively, you can have Ignition create an internal SQLite database, which is ideal for testing, demonstrations, and just getting started. This next section will show how to create and connect Ignition to a SQLite database.

Connect to SQLite

Since SQLite is intended for lightweight local storage, you'll want to connect to a server-based database in a production system. For the purpose of getting started as demonstrated on this page, the SQLite database is an easy option to use.

1. If you are already logged into Ignition, then go to the **Config** section of the Gateway Webpage, otherwise login as the user with full/administrative privileges.
2. From the **Config** section, navigate to the **Databases > Connections** page.
3. Click the **Create new Database Connection...** link.
4. Select the **SQLite** option and click the **Next >** button.



5. On the Database Connections page, enter a **Name** and **Connect URL**. You can leave the other fields blank.
- On Windows systems, the Connect URL will default to: **jdbc:sqlite:C:/Path/To/File.db**. Part of the Connect URL is a file path. The Gateway will attempt to create a SQLite database at the specified path (assuming there isn't already one there, in which case it simply connects to that database).
 - The SQLite Database Connection does not require a username or password to connect. Scroll to the bottom and click the **Create New Database Connection** button.

Ignition! Help ? Get Designer

Config > Database > Database Connections

Trial Mode 1:30:14 Activate Ignition

Main Properties

Name SQLite Choose a name for this database connection.

Description

JDBC Driver SQLite The JDBC driver dictates the type of database that this connection can connect to. It cannot be changed once created.

Connect URL jdbc:sqlite:C:/Path/To/File.db The Connect URL is JDBC-driver specific. It usually contains the address of the machine that the database is running on. The format of the SQLite connect URL is:
jdbc:sqlite:C:/Path/To/File.db
jdbc:sqlite:/path/on/linux/File.db
Or use jdbc:sqlite::memory: for a temporary database.
Use \${data} as a placeholder for the Ignition Gateway's data directory, regardless of operating system.

A success message will appear when the database connection is created.

Ignition! Help ? Get Designer

Config > Database > Database Connections

Trial Mode 0:35:58 Activate Ignition

✓ Successfully created new Database Connection "SQLite"

Name	Description	JDBC Driver	Translator	Status
SQLite		SQLite	SQLITE	Valid delete edit

→ Create new Database Connection...

Note: For details about a connection's status, see the [Database Connection Status](#) page.

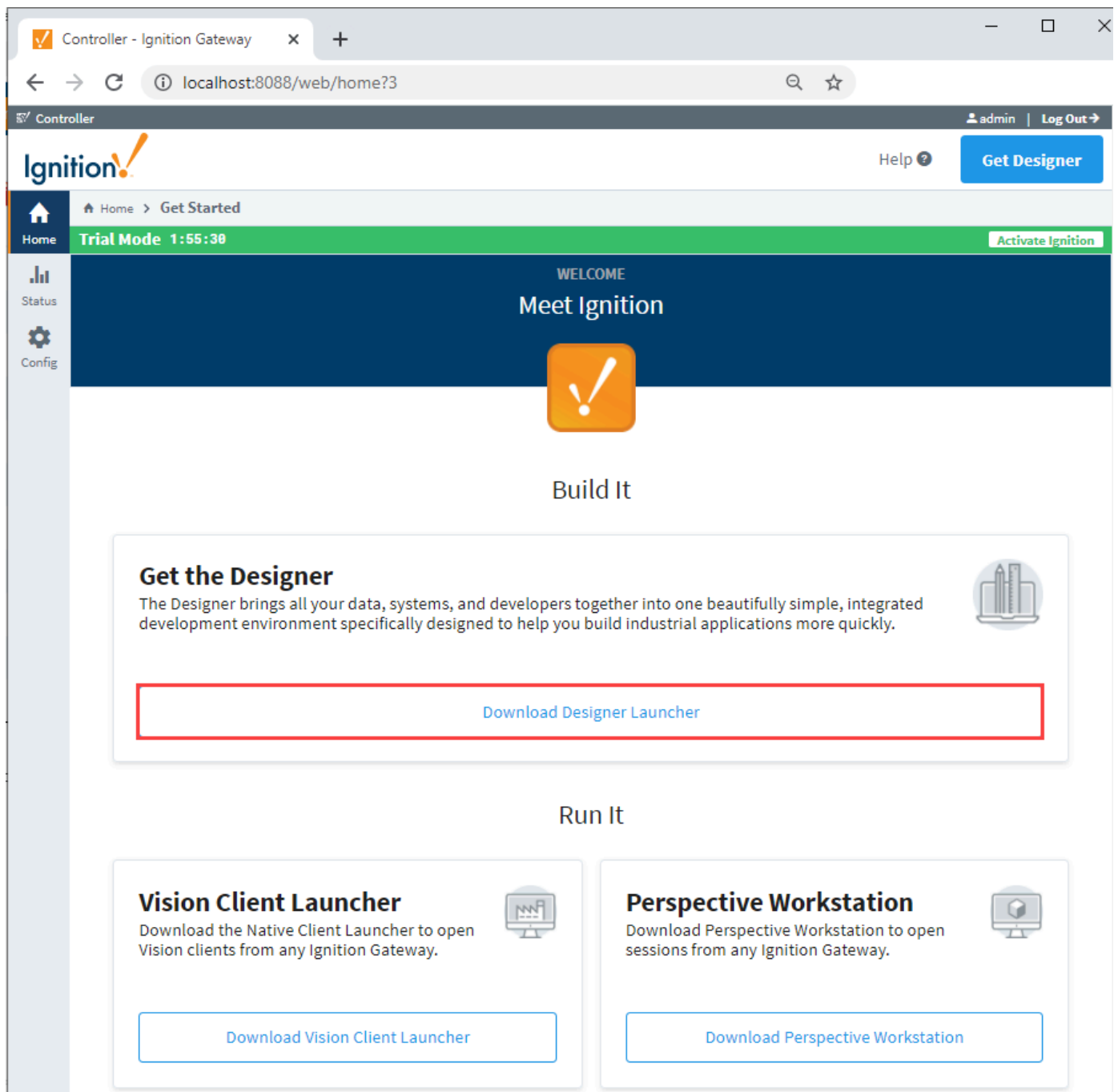
To get detailed descriptions for a number of different database connections, see [Connecting to Databases](#). You can also go to [Database Connections](#).

5. Open the Designer

Now that you set up a device ([Connect to a Device](#)) and database ([Connect to a Database](#)) connections, let's open the Designer and create a project.

Launch the Designer

1. If you are already logged into Ignition, then go to the **Home** tab of the Gateway Webpage, otherwise login as the user with full / administrative privileges.
2. Under Get the Designer, click the **Download Designer Launcher** button.



3. Select the **Download** button for the platform you are running on: Windows, Mac OS, or Linux. In this example, we are running on Windows.

The screenshot shows a web browser window with the URL `localhost:8088/web/designer-launchers?9`. The page is titled "Controller - Ignition Gateway" and shows the Ignition logo. The user is logged in as "admin" and can click "Log Out" or "Get Designer". The page is in "Trial Mode" and shows a timer "1:33:43". The main heading is "Download the Designer Launcher". A red box highlights the "Download for Windows" button. Below this, there are three numbered steps: 1. Run the Designer Launcher Installer, 2. Follow Setup Instructions, and 3. Provide Firewall Access. Each step includes a screenshot of the corresponding window. On the right, there is a section for "Alternative Designer Launcher" with links for Windows (62.3MB), Mac (50.7MB), and Linux (72.6MB).

Controller - Ignition Gateway

localhost:8088/web/designer-launchers?9

Controller

admin | Log Out

Help Get Designer

Home > Designer Launcher Download

Home Trial Mode 1:33:43 We're glad you're test driving our software. Have fun. Activate Ignition

Download the Designer Launcher

We've detected you're on Windows. Download the Designer Launcher for Windows and follow these steps below to install.

Download for Windows

Alternative Designer Launcher

The Designer Launcher is also available for these operating systems.

Windows 62.3MB

Mac 50.7MB

Linux 72.6MB

What do you want to do with DesignerLauncherSetup.exe (45.9 MB)? From: 127.0.0.1

Run Save Cancel

1. Run the Designer Launcher Installer

Click Run or Save to initialize the download.

*If you chose Save, **double-click** the download to start installing.

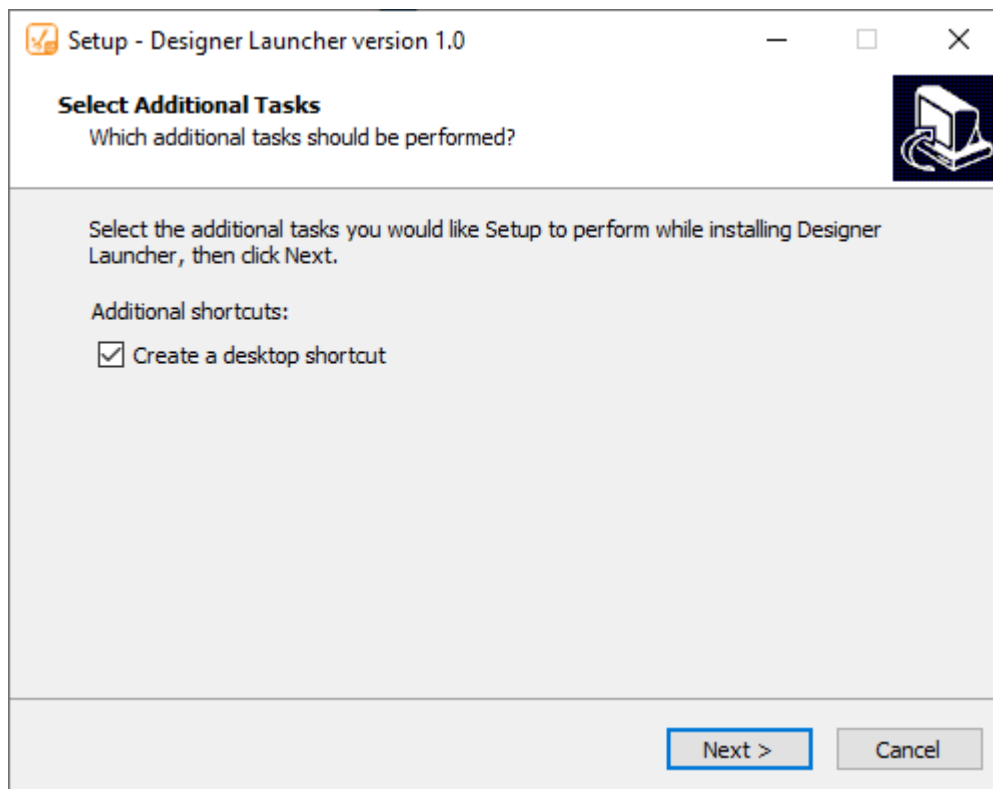
2. Follow Setup Instructions

Follow the instructions to get the Launcher installed on your computer. After the installation is complete you will be asked if you want to launch now.

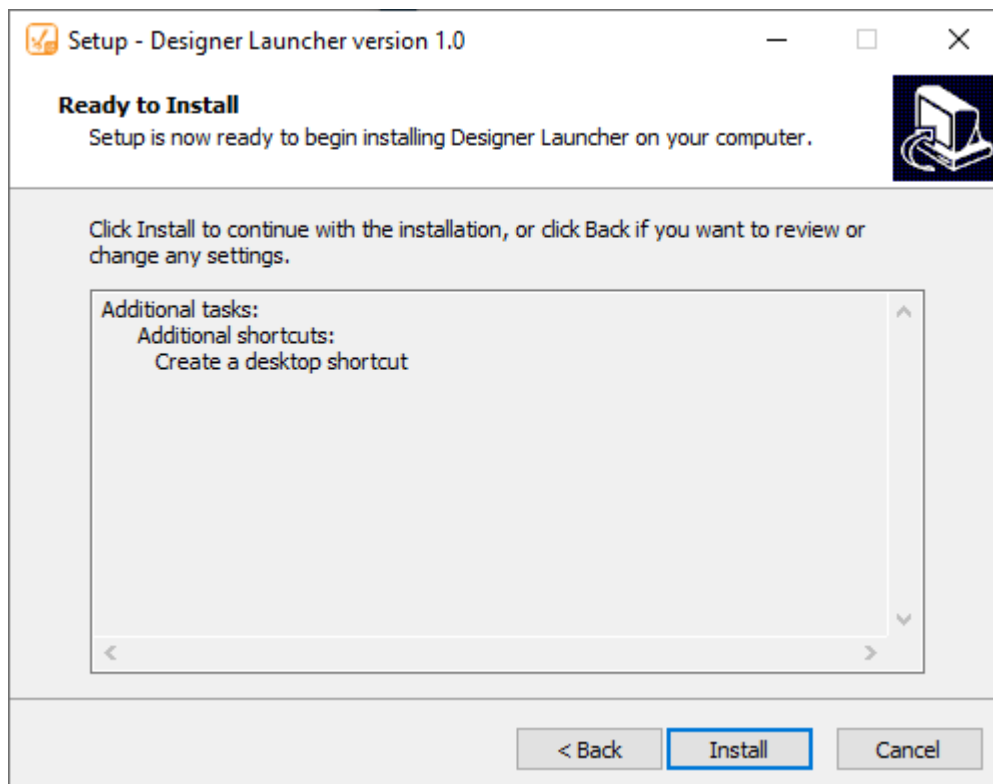
3. Provide Firewall Access

On the majority of windows machines you will need to allow access to the firewall for the application to work properly. Windows Defender will prompt you the first time you run the application. **Click Allow Access.**

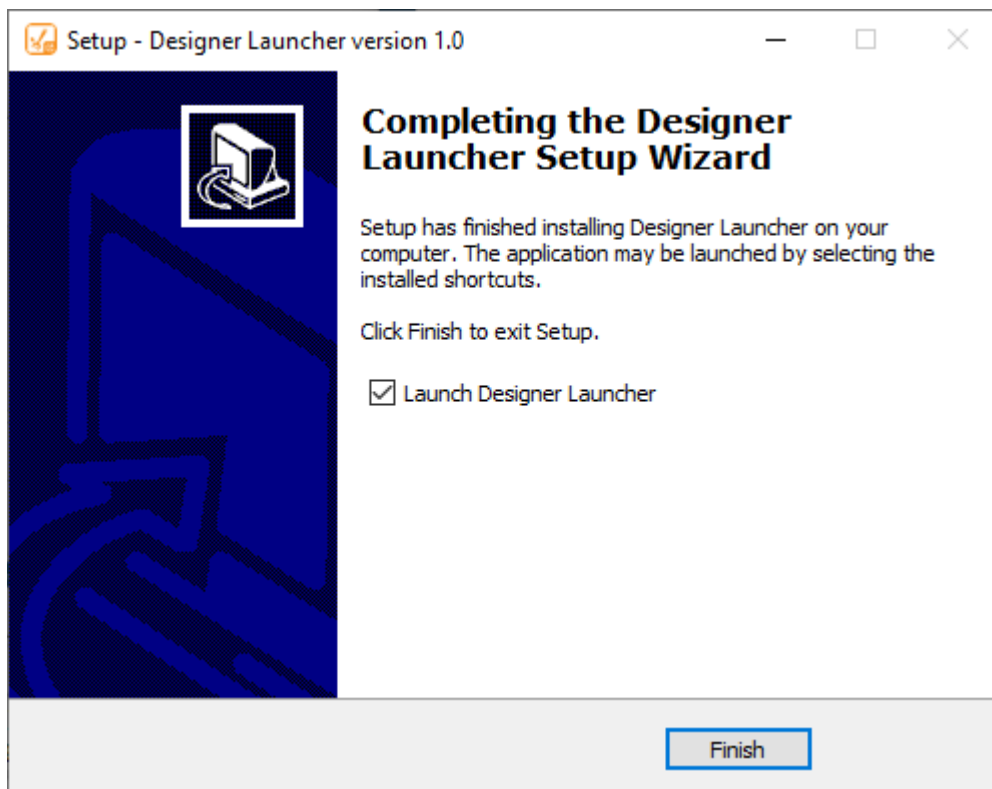
4. Run the downloaded file (**DesignerLauncher.exe**) found on the lower-left of the window, or go to your downloads folder and double-click the file to run it.
5. The Select Additional Tasks window will open. Here, you can select additional tasks that you would like to set up to perform while installing the Designer Launcher. It's a good idea to **Create a desktop shortcut** so it's easily accessible when you want to open the Designer Launcher. Click **Next**.



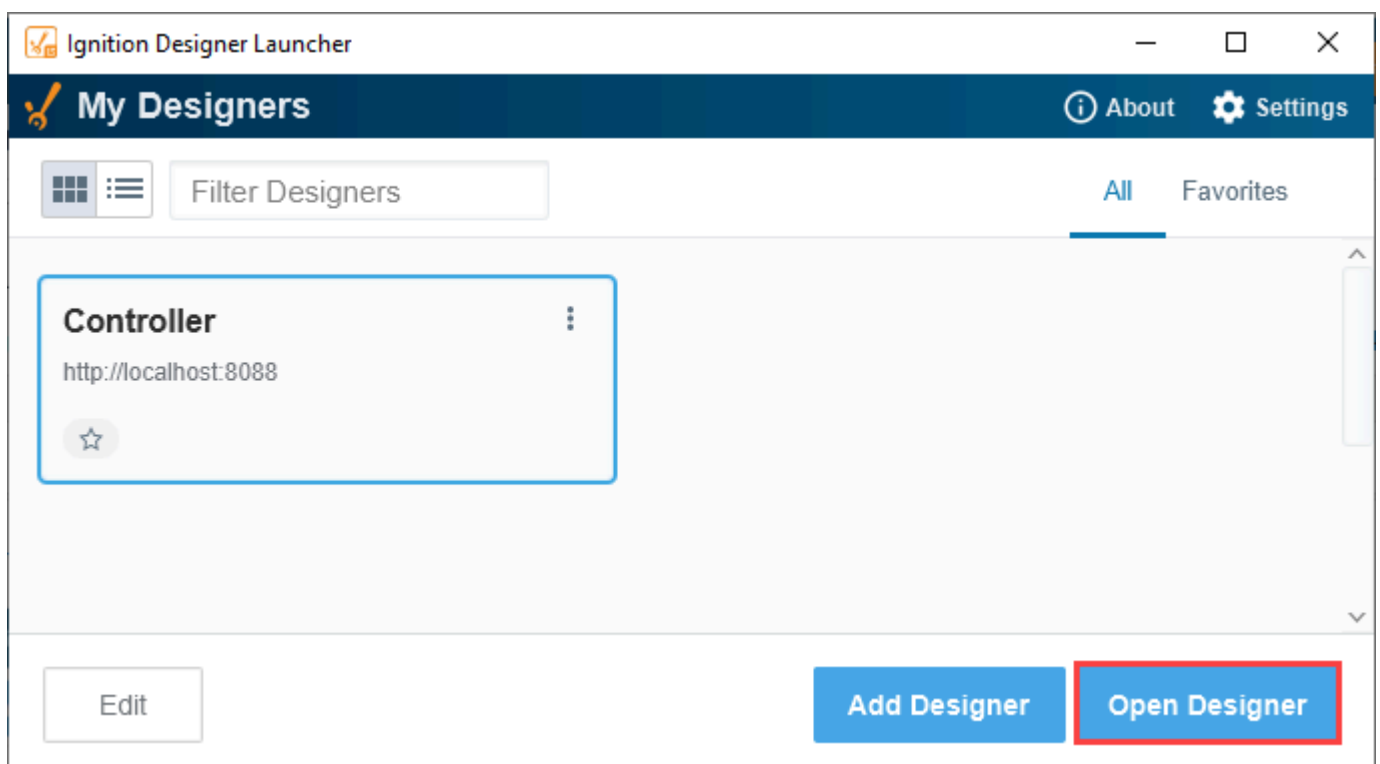
6. Now, you're ready to install the Designer Launcher on your computer. Click **Install** to continue.



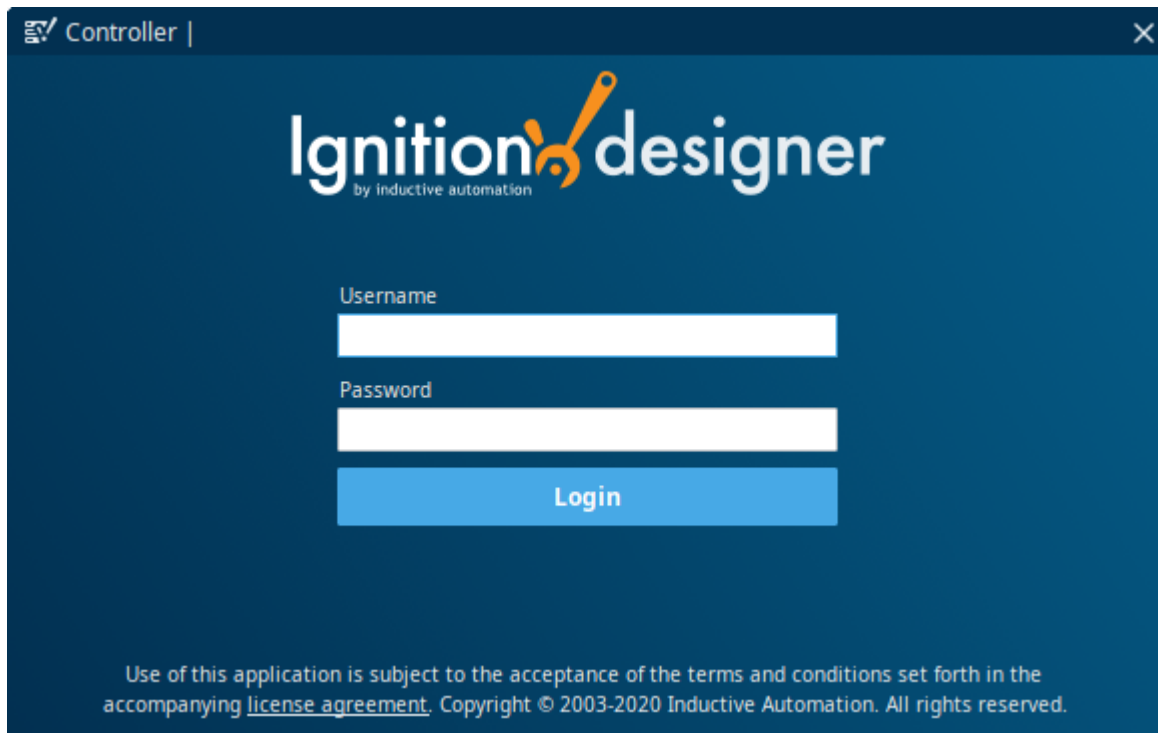
7. Once the Designer Launcher is installed, complete the setup by checking the box to **Launch Designer Launcher** and click **Finish**.



8. The Ignition Designer Launcher window will open. Here you can select any Designers you have permission to launch. If you are running this for the first time, by default, you will need to add a Designer. Click **Open Designer** to launch an existing Designer. Refer to the [Launchers and Workstation](#) page for detailed information on adding a Designer, including creating a Designer Shortcut, adding to Favorites, and more.



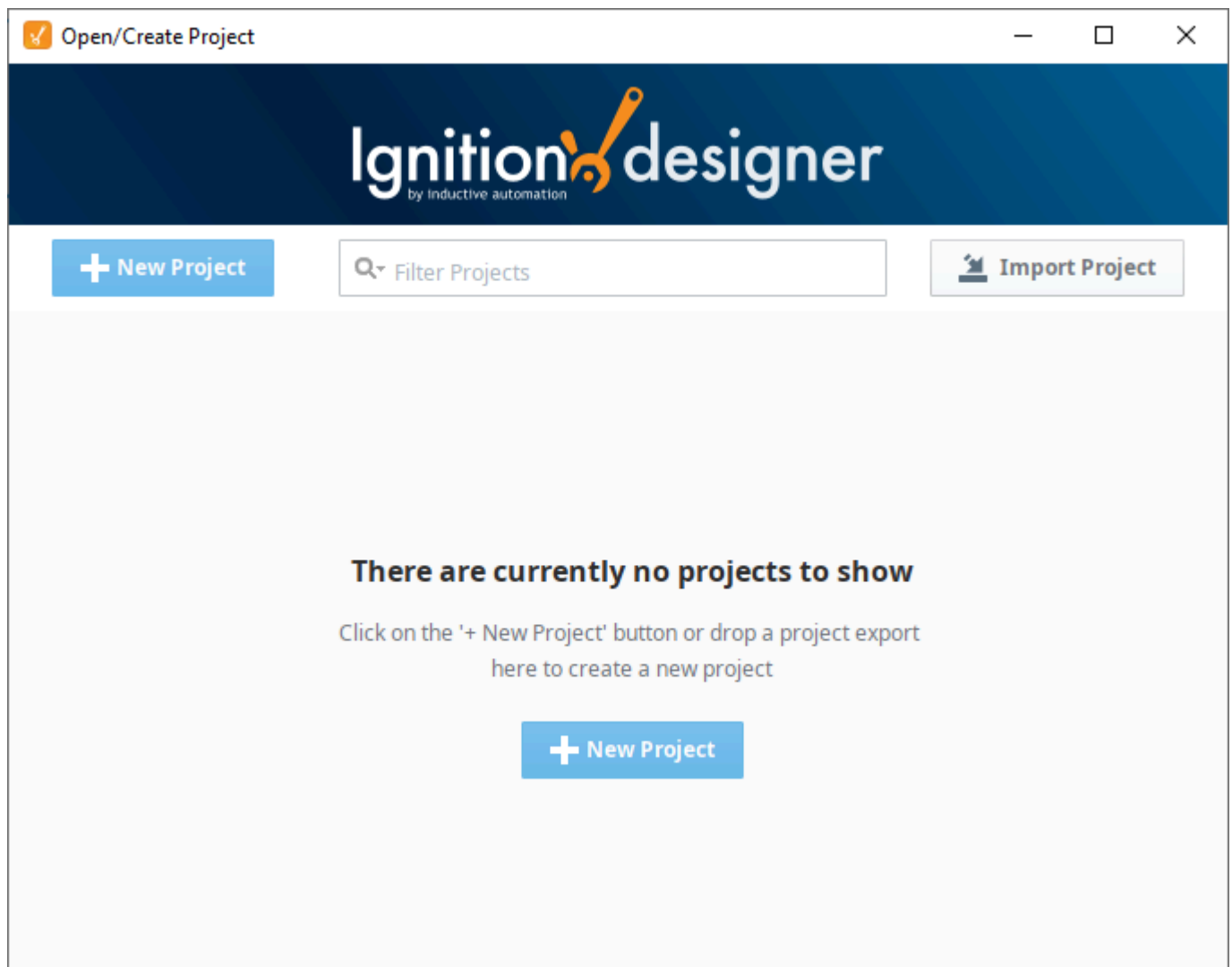
9. The Designer starts up and the login window is displayed. Enter the credentials for the administrator or user with full privileges for the Designer, and click **Login**. It should be the same as the login for the Gateway **Config** section.



Create a Project

After logging into the Designer, the **Open/Create Project** window gives you two options, to create a new project or open an existing one. As we don't have any existing projects yet, we will create a new project.

1. Click **+ New Project**. This opens the New Project Setup window.



2. Enter the **Project Name** (required) and any other configuration settings you need for your project. Most settings are optional.
Refer to the [Project Creation Settings table](#) for a description of each property. When finished, click **Create New Project**.

The screenshot shows a web browser window titled 'Open/Create Project'. The main header is dark blue with the 'Ignition designer' logo, where 'Ignition' is in white and 'designer' is in white with an orange wrench icon. Below the header, there's a navigation bar with a 'Back' button (left arrow), the title 'New Project Setup', and a 'Create New Project' button (blue). The main content area is light gray and contains three form fields: 'Project Name' with the text 'NewProject' and a green checkmark icon; 'Project Title' with an empty text box; and 'User Source' with a dropdown menu showing 'default' and a downward arrow icon. A vertical scrollbar is visible on the right side of the form area.

3. When you open the Designer interface for the first time, the Perspective Page Configuration opens if you have the Perspective Module installed. If you don't have the Perspective Module installed, the Vision Designer window will open. You can begin designing in either Perspective or Vision from the Designer interface, as shown in the image below. Expand the Perspective and Vision folders and you'll notice that the folder contents are different. In Perspective, you add components to Views. In Vision, you add components to Windows.

Click [here](#) to learn more about the **Designer**.

6. Create Tags

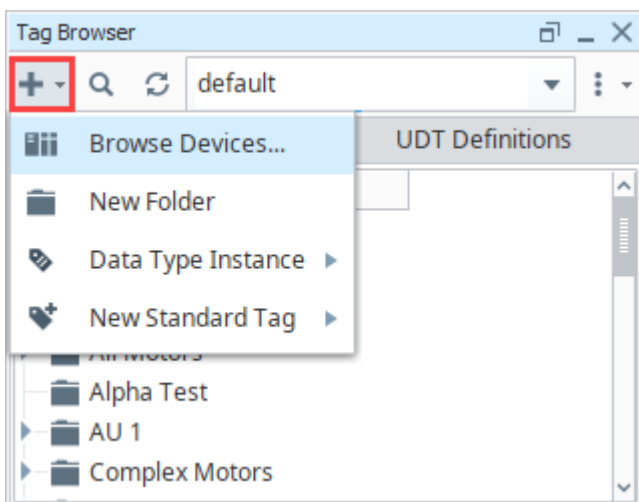
With the Designer open, a great first step is to create some Tags. Once there, Tags are all configured in the **Tag Browser** panel. You'll use these Tags for realtime status and control and to store history with the Tag Historian.

Click and Drag Tags into the Designer

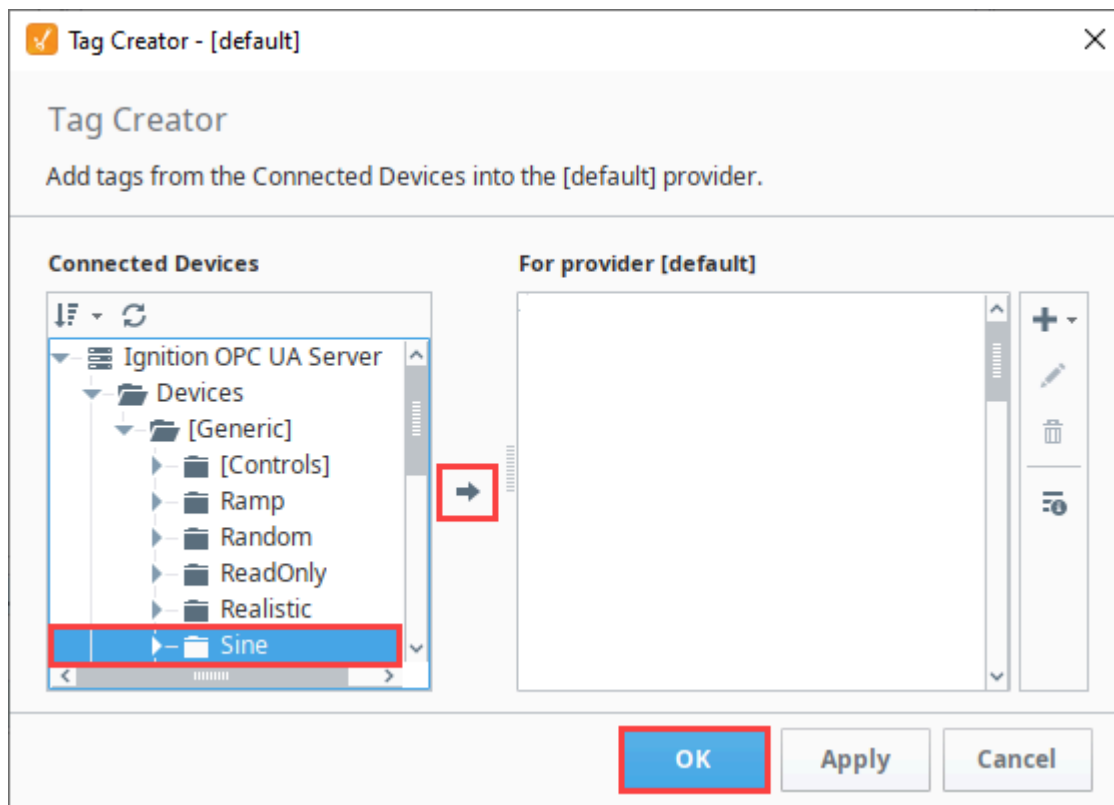
If you are connected to a device in [Connect to a Device](#), the easiest way to create some Tags is by dragging the Tags from the Ignition OPC UA Server.

On the left side of the Designer you will see 3 panels, the **Project Browser**, the **Tag Browser**, and the **Property Editor**.

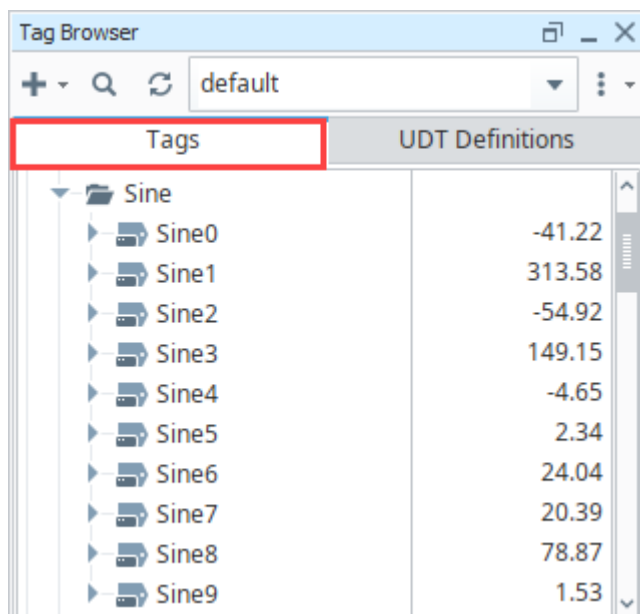
1. On the left side of the Designer, you will see the Project Browser and Tag Browser. In the Tag Browser, click on the **Add**  icon to open the context menu and select Browse Devices. You can view all your connected devices and add Tags.



2. By default, you have a connection to the internal **Ignition OPC UA Server**. Under Connected Devices, expand the Ignition OPC UA Server to find your list of devices, and then expand the device folder to see some tags inside. Highlight the tags you want (for example, as in the image below, the entire **Sine** folder is selected). Click the right arrow icon  to move your selected folder or tags to the **For Provider** area. Click **OK** to copy the Tags to your Tag Browser. Ignition keeps the same hierarchy in the Tag Browser as in the PLC.



3. That's it. You now have some Tags. Click the **Tags** tab and open new **Sine** folder to see what was added. You can see their values come in and start updating automatically. By default, they update at a 1 second rate.



[Learn more about Tags](#)

7. Add History to Tags

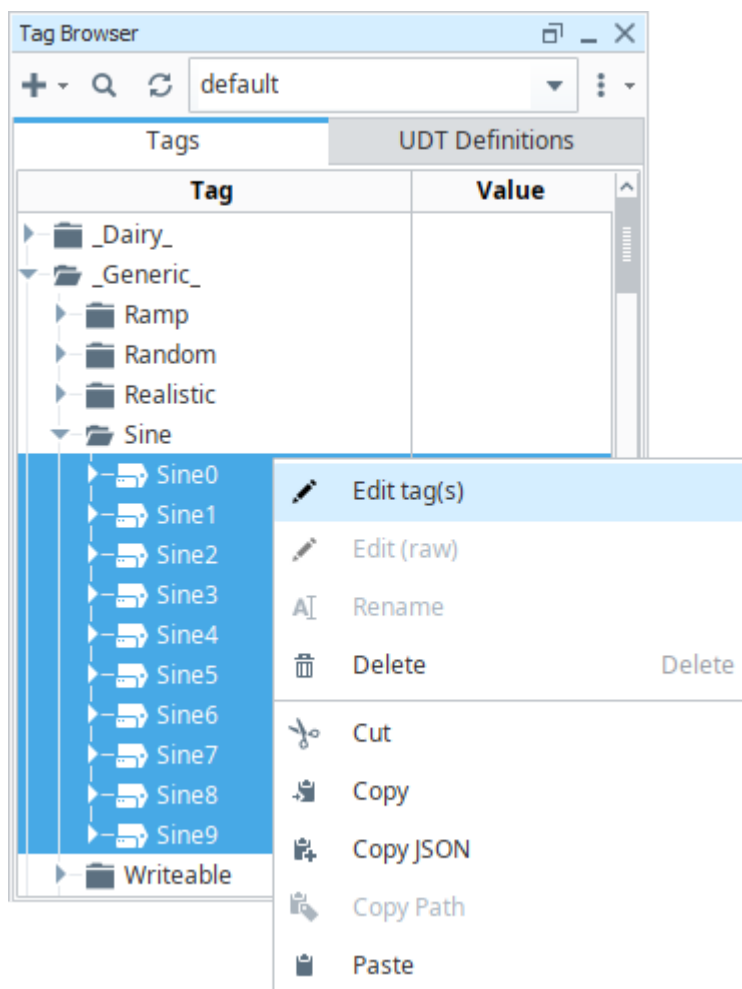
Storing history for your Tags is simple, and once that's done we can display it on screen in a variety of ways. If you are connected to a database ([Connect to a Database](#)), you are ready to add history to some of our Sine Tags.

Add History to your Tags

1. In the Designer's **Tag Browser**, select one or more tags.

For example, select all the **Sine** tags in the Sine folder by holding the **Ctrl** key and clicking on several tags.

2. Right-click on the selected tags, and then select **Edit tag(s)**.
 - The Tag Editor window is displayed. Here, you can edit the tag and change the name, data type, scaling options, metadata, permissions, history, and alarming.



3. Scroll down to **History** on the left side of **Tag Editor**, and set **History Enabled** to 'true'.

Tag Editor

Multiple Tags

default

Properties

☰

↓

☰

☰

☰

+

☒

▼ Meta Data Properties

Tooltip

☐

Documentation

☐

▼ Security

Read Permissions

☐ Public

Read Only

☐ false

Write Permissions

☐ Public

▼ Scripting

Tag Event Scripts

☐ 0 event scripts

▼ Alarms

Alarms

☐ No alarms

Alarm Eval Enabled

☐ true

▼ History

History Enabled

☒ true

Storage Provider

☐

Deadband Style

☐ Auto

Deadband Mode

☐ Absolute

Details

Documentation

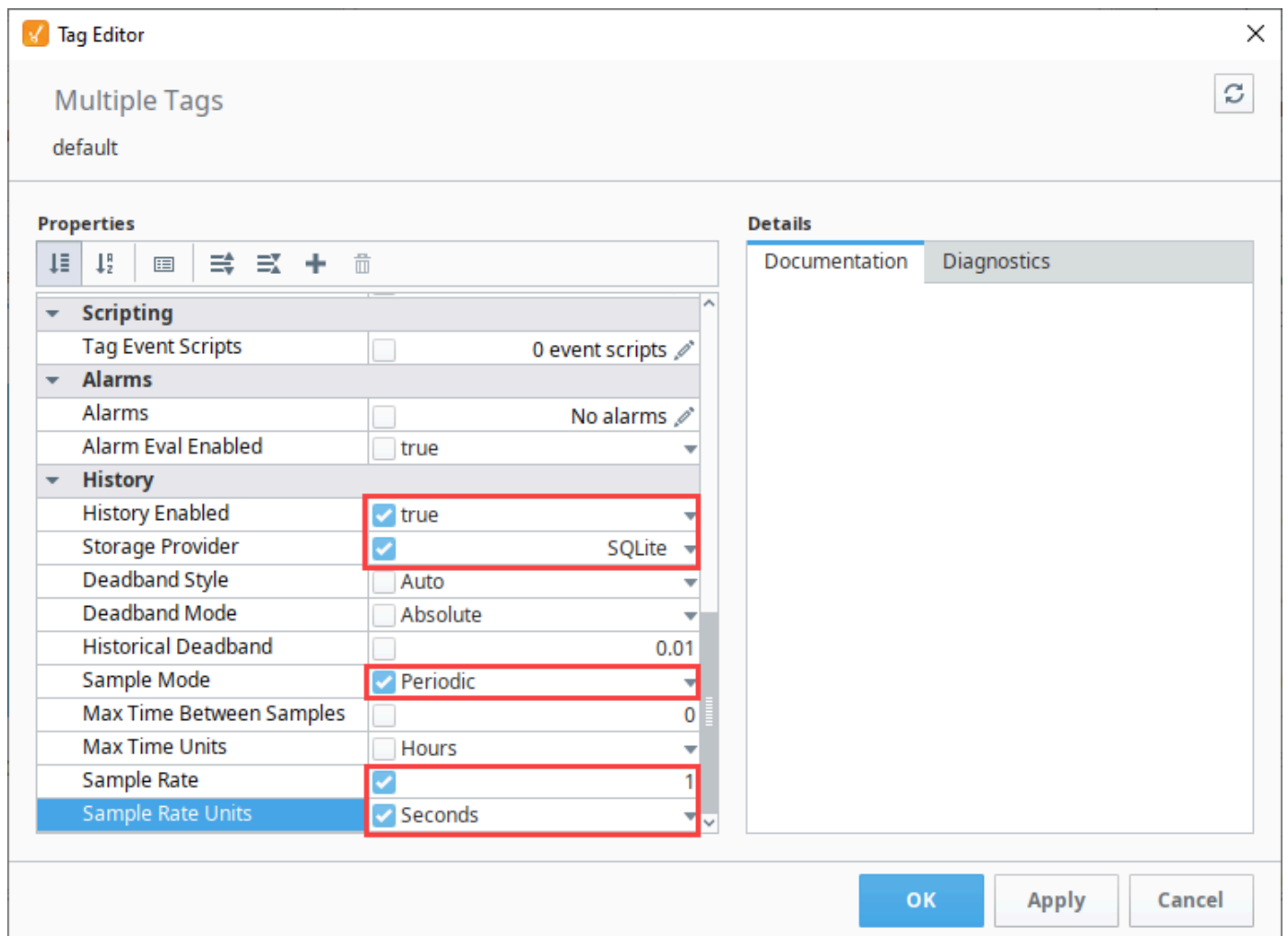
Diagnostics

OK

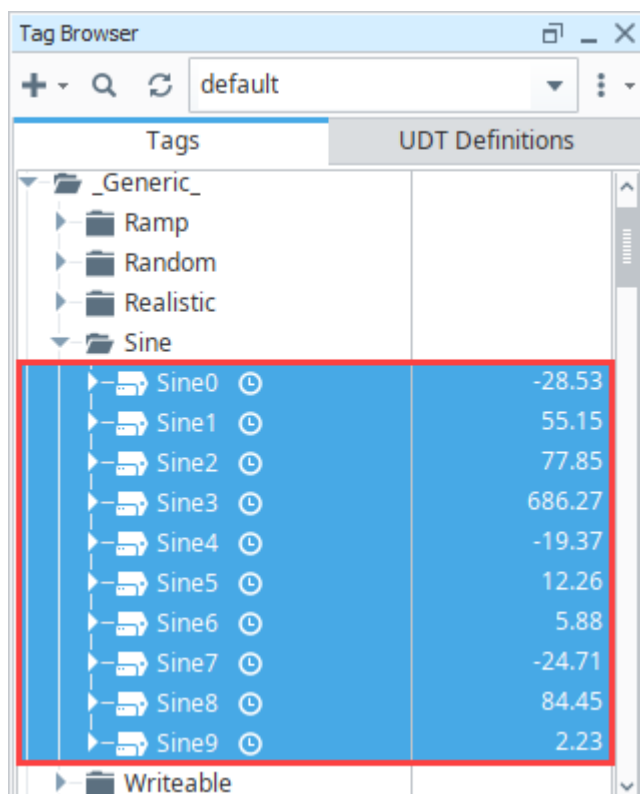
Apply

Cancel

4. Choose a database from the Storage Provider dropdown, like the one set up in [Connect to a Database](#).
5. To set the rate that data is logged:
 - i. Change the **Sample Mode** to **Periodic**.
 - ii. Set the **Sample Rate** to **1**, meaning data will be logged every **1** second.
 - iii. Verify that the **Sample Rate Units** is set to **Seconds**.
6. Click **OK**.



7. Now look in the **Tag Browser**, to the right of each **Sine** Tag that is storing history, an icon (🕒) appears letting you know it is set up.



If you were to look in your database, you can see all the tables and data Ignition has created for you.

To learn more about the Tag Historian, see the [Tag Historian](#).

8. Add Components - Perspective Session

Before we talk about how to add components to Perspective Views, it's important to first understand all the objects that comprise a **Perspective Session**. It will help you determine your design strategy within a browser-based design environment and how components inside a View will behave before you ever drag a component into a View.

With that in mind, we recommend reading the **Perspective Sessions** section of the manual to fully understand how all the objects that make up a Perspective Session work together to create dynamic pages.

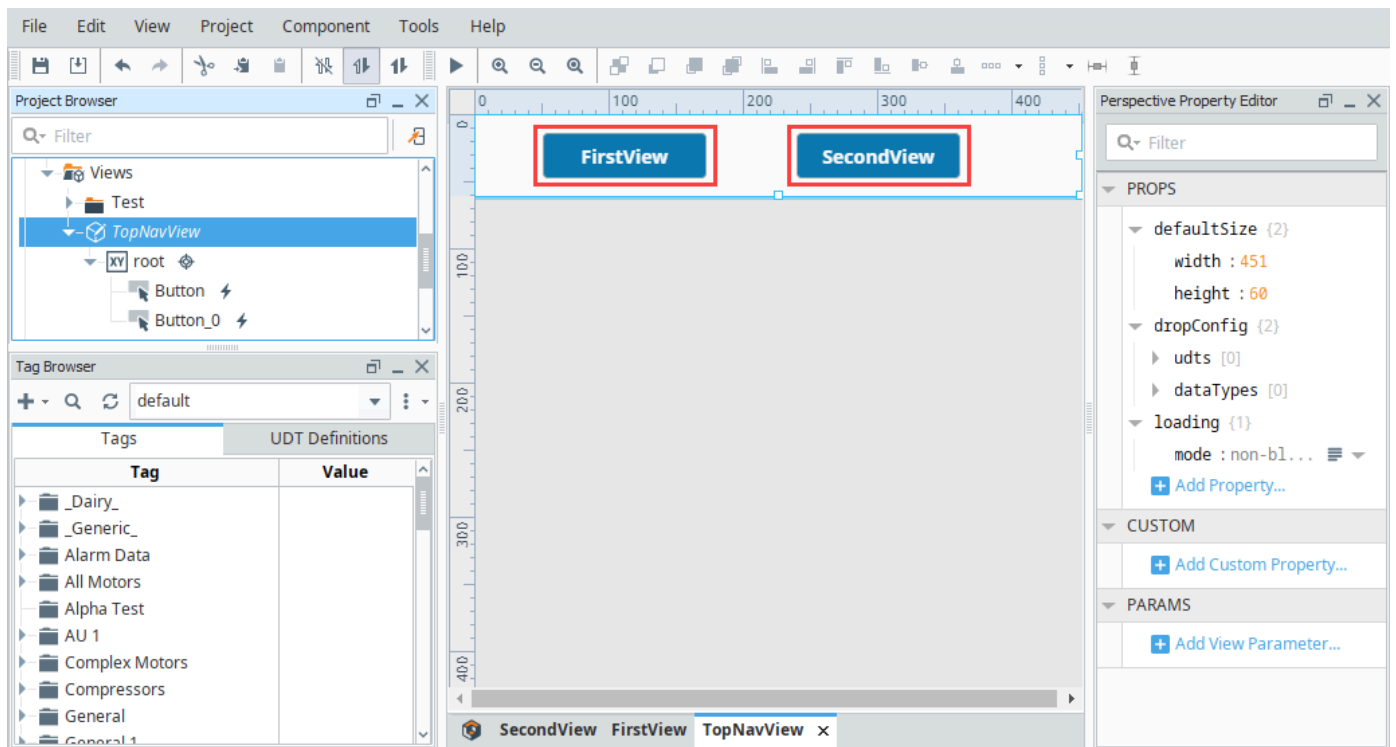
On this page, we demonstrate how to add components to a View and bring them to life by showing live values, displaying Tag History data on a chart, configuring pages for navigating within a session, and launching a Perspective session.

1. **Creating Views and Adding Components:** Views are the **primary unit of design** and can be displayed across the top, bottom or sides of a page, or even a whole page in a Perspective Session. You can drag and drop components into a View, and make them display text, show Tag Values, and display Tag History data.



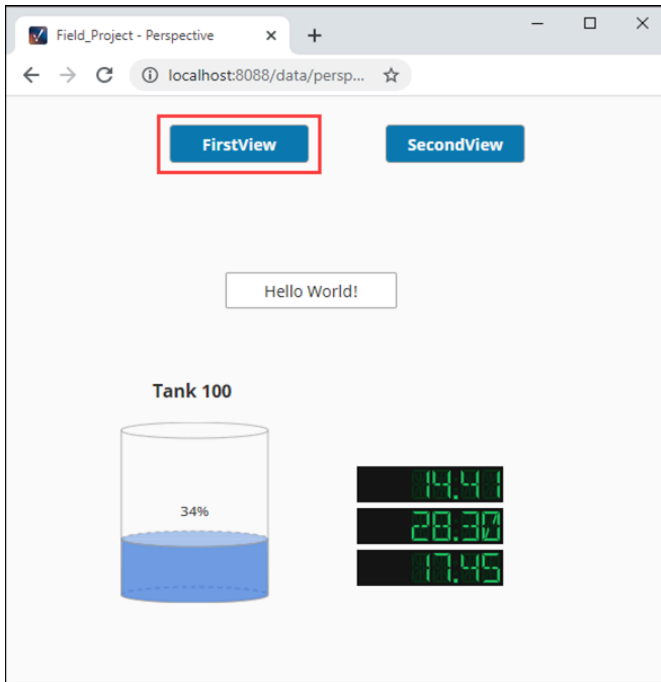
2. **Showing Tag History in a Power Chart:** You can display Tag History data using a **Power Chart**. This requires that you have **Tag History** already set up. Refer to the Configuring Tag History page for more details.

3. **Navigating in a Perspective Session:** One of the most important aspects when launching a Perspective Session is having a solid navigation design so the user knows where they are, where they've been, and where they are going. How you configure your page settings dictate how the browser navigates and displays each page of your Perspective Session.

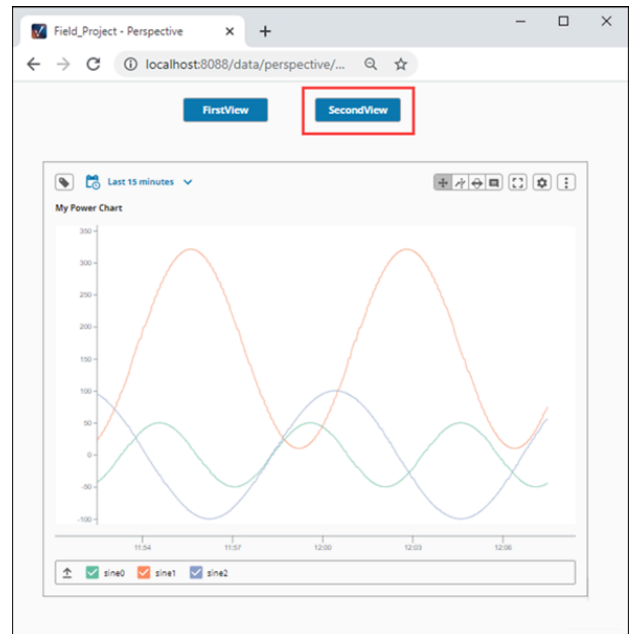


4. **Launching a Perspective Session:** Once your project is created and pages are configured, you're ready to launch a Perspective Session. Here is what your Perspective session will look like in your browser window. Toggle between the FirstView and SecondView to switch between pages in your session. The FirstView displays the components and the SecondView displays the Power Chart.

FirstView



SecondView

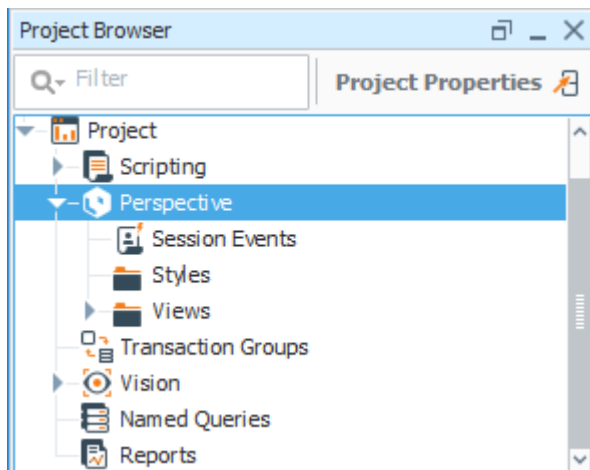


1. Creating Views and Adding Components

In Perspective, views are the primary unit of design and a container provides a way of organizing and laying out components within a view. There are a variety of container types that support different layout strategies.

To keep this example simple and get you started creating your first view, we used a Coordinate container type. This example requires that you are connected to the [Programmable Device Simulator](#) and set the program to Generic.

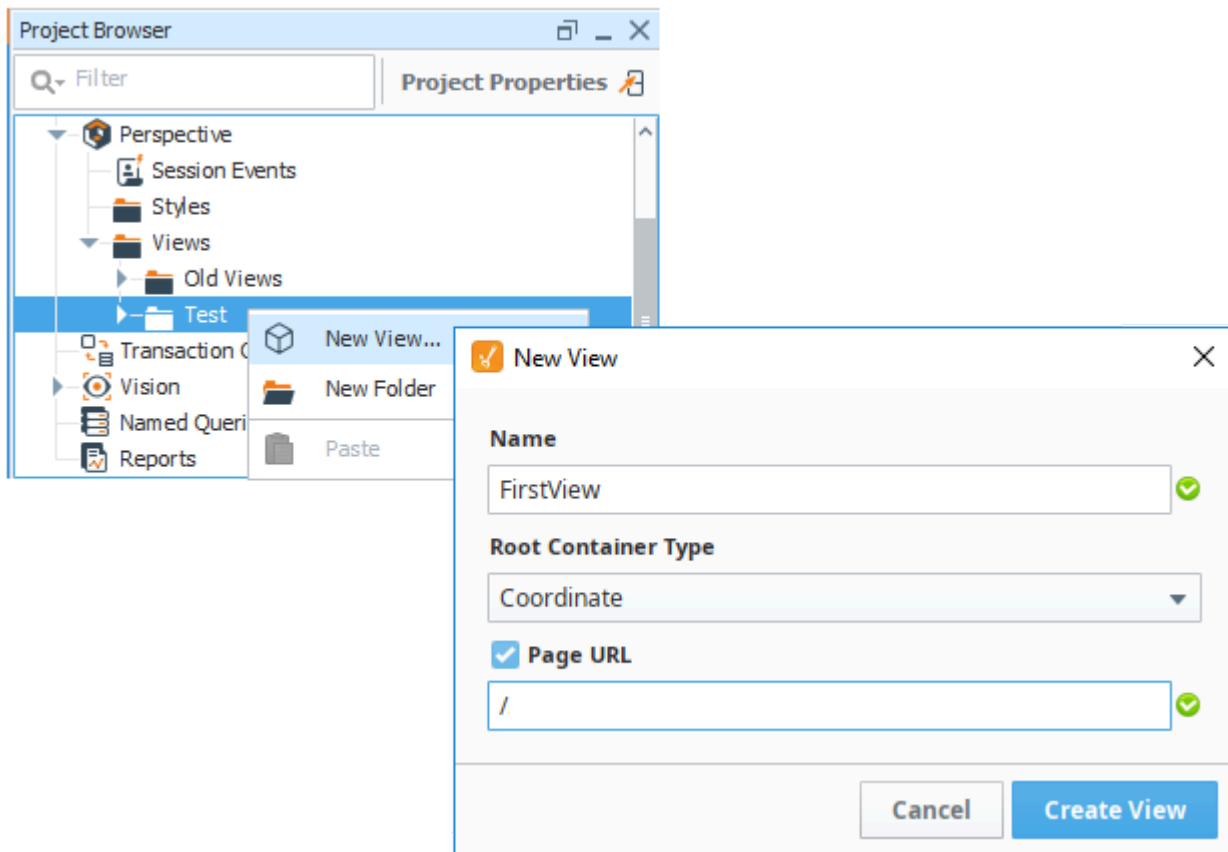
1. With the Perspective Designer open, go to the **Project Browser** and expand **Perspective**.



2. In the Project Browser, click on the **Views** folder and right click on **New View....**
 - i. Select a **Root Container Type** from the dropdown. Select **Coordinate** container type.
 - ii. Check the **Page URL** checkbox if you want your view attached to the Page URL.
 - iii. Click **Create View**.

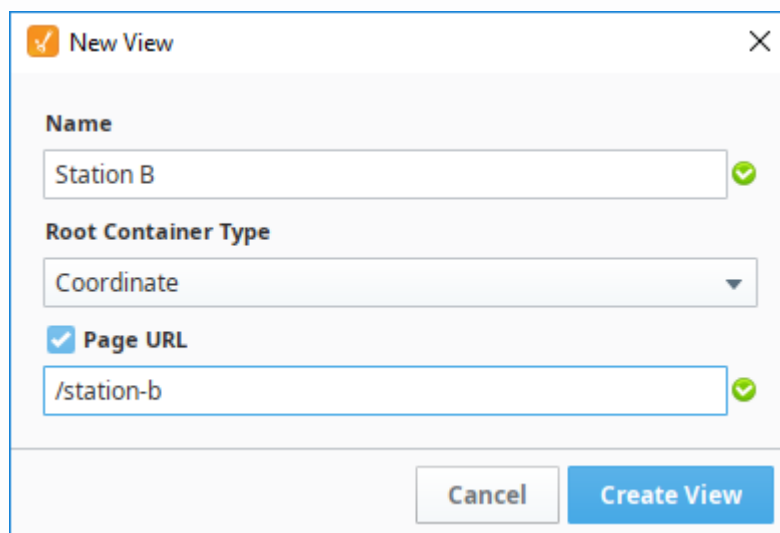
⚠ MATCH THE URL WITH THE FOLDER STRUCTURE

Perspective will match the **Page URL** with the View's folder structure upon creation. In the example below, the FirstView was created in the Test folder. Perspective knows to match the URL to the View.

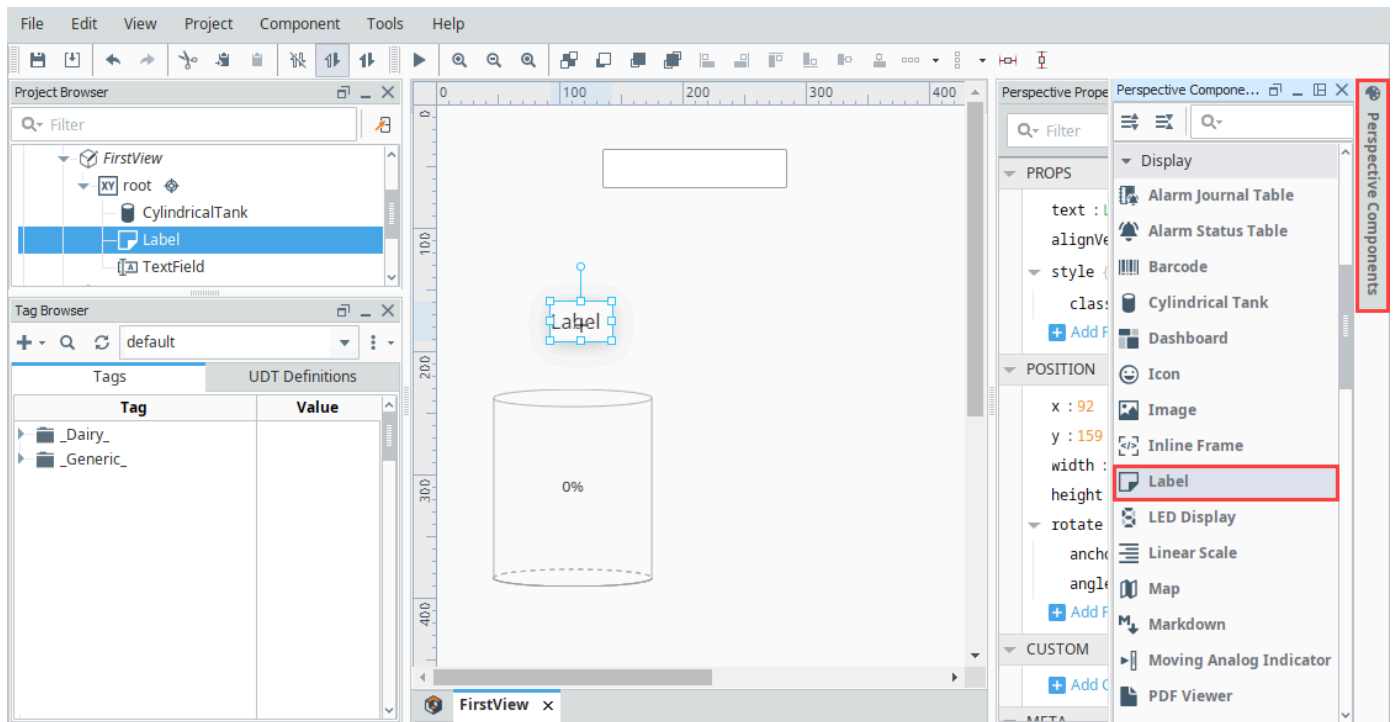


NOTE

If your View Name contains a space, such as "Station B", the Page URL will replace the space with a hyphen. The Page URL automatically gets filled in when the View Name is typed in.

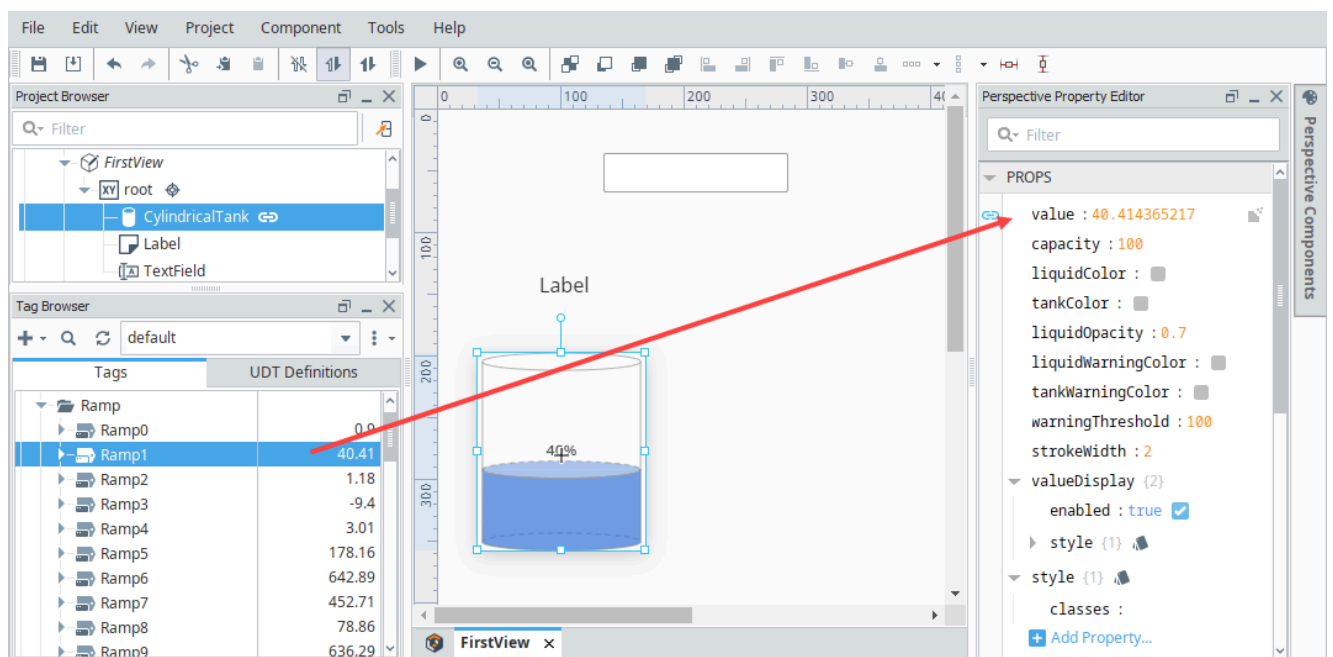


- The Designer will refresh and now you're ready to begin adding components into your view. On the right side of the Designer, click on the grayed out **Perspective Components** banner to open the **Components Palette**. Drag the **Text Field**, **Label**, and **Cylindrical Tank** components into the View.



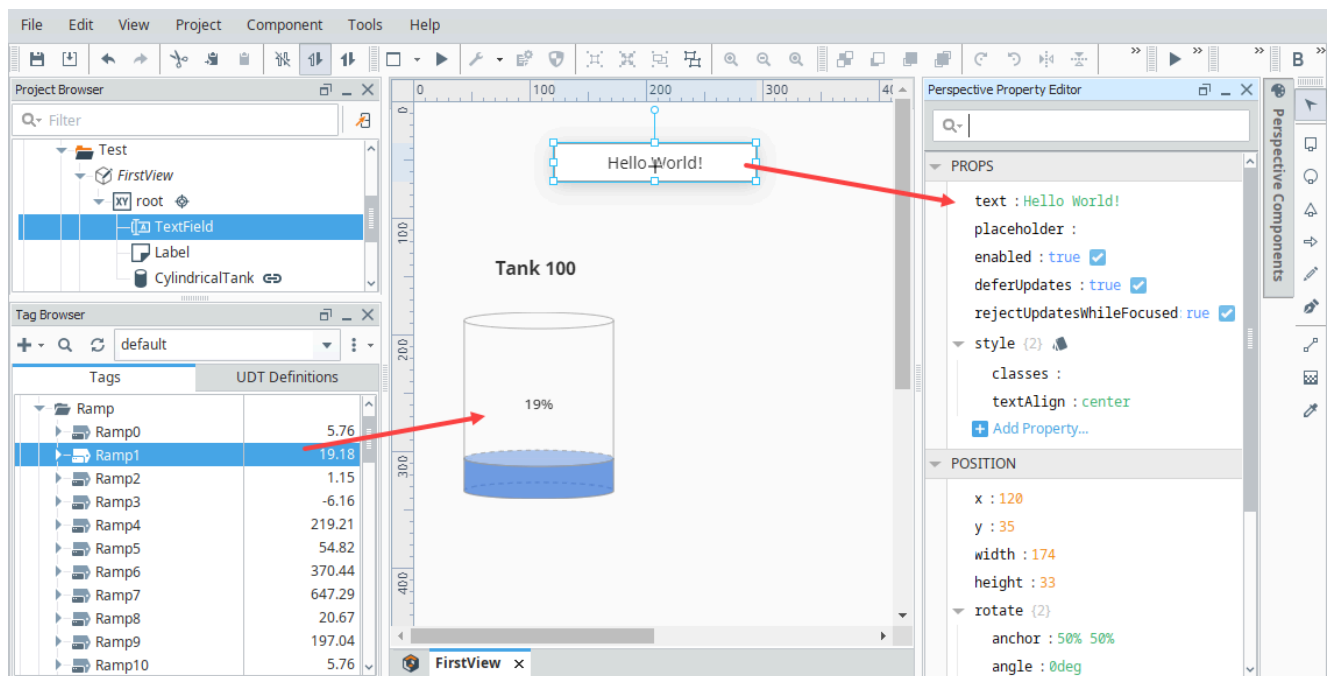
4. To add Tag values to each of the components, click on the component and enter the value in the **Perspective Property Editor**, or drag a Tag to the **value** property.

i. **Cylindrical Tank**: Drag a Tag from your Tag Browser on to the **value** property. This example uses a **Ramp1** tag.

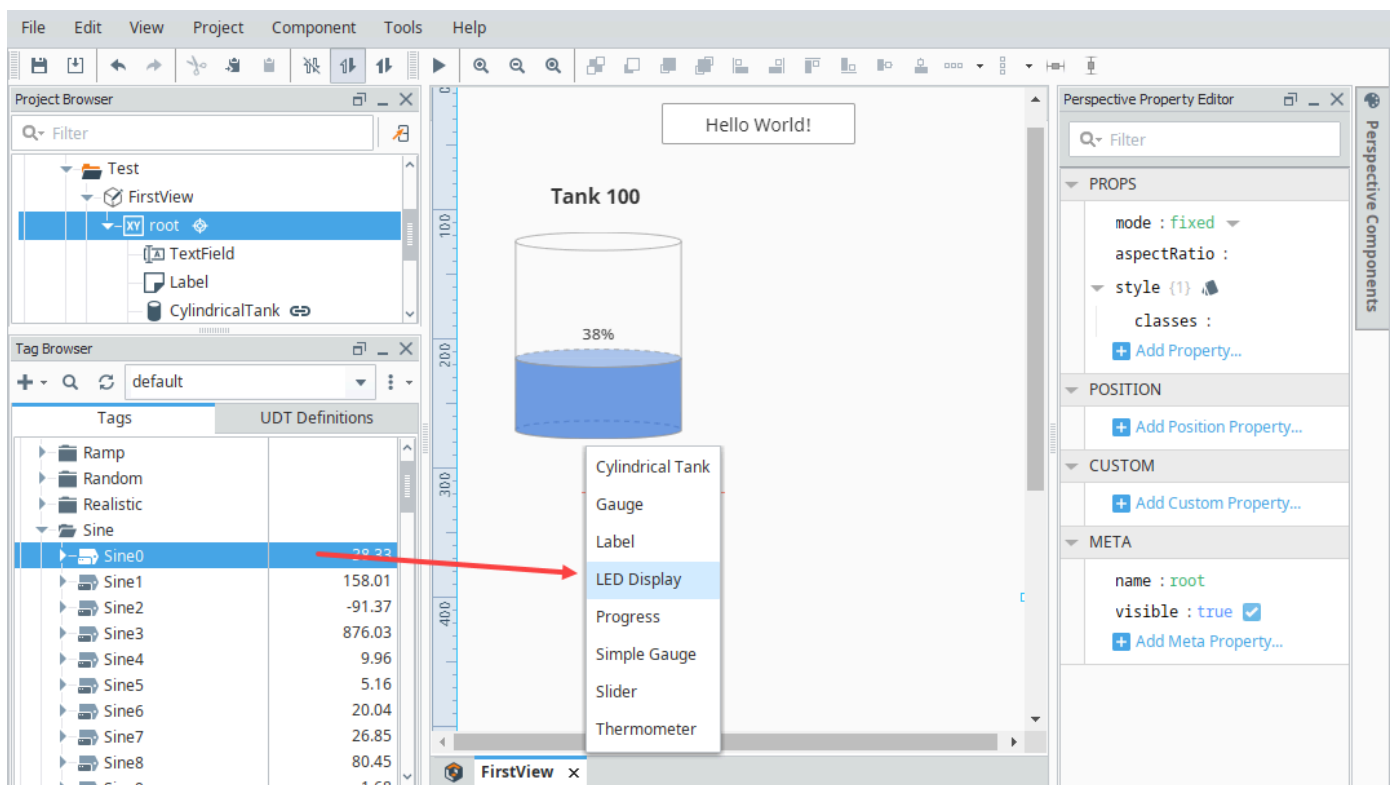


ii. **Label**: Enter **Tank 100** next in the **Text** property field.

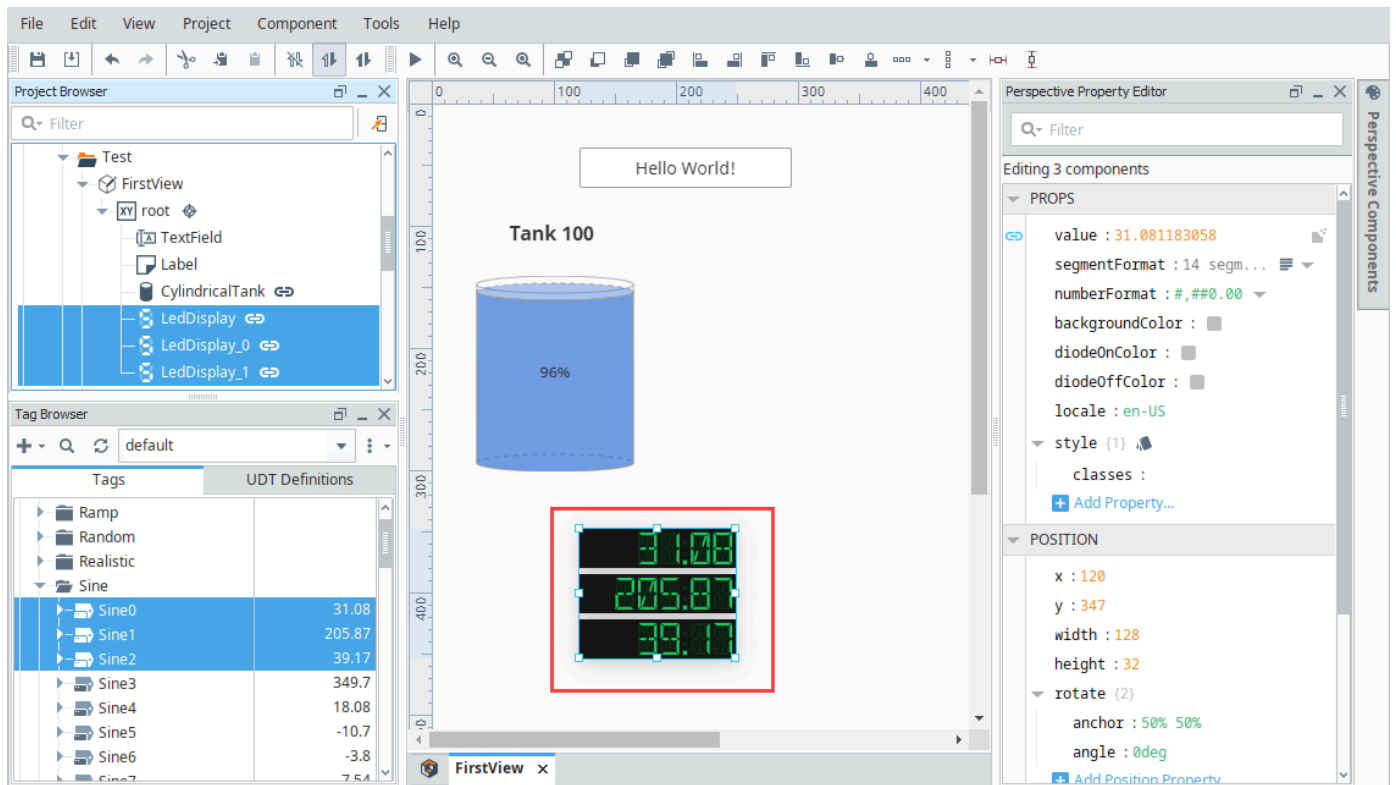
iii. **Text Field**: Enter **Hello World!** in the **Text** property field. While the component is selected, you can also click and drag the arrow handles to resize them and move them in the Designer workspace.



5. Another way and the simplest way to add a Tag to a component is to go into the **Tag Browser**, select the Tag (i.e., Sine0) you want and drag it into your view. A pop-up will appear giving you several selections for components to use. We selected an **LED Display** to show our tag value.



6. Repeat that process to create two more LED Displays using Sine1 and Sine2.



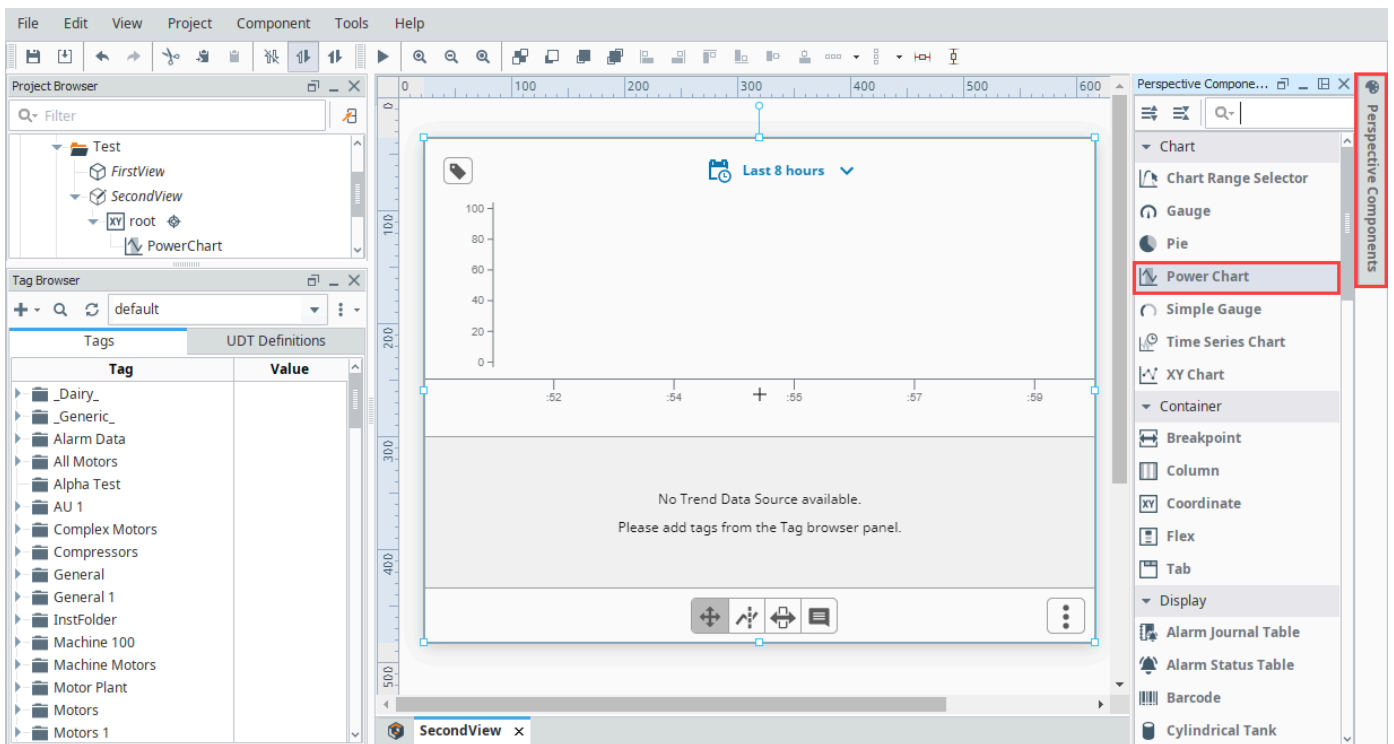
7. Save your project by selecting **File > Save**.

To learn more about bindings, go to the [Bindings in Perspective](#) page.

2. Showing Tag History in a Power Chart

Let's create a second view (i.e., **SecondView**) and add a Power Chart component to show history on the values of several Sine Tags.

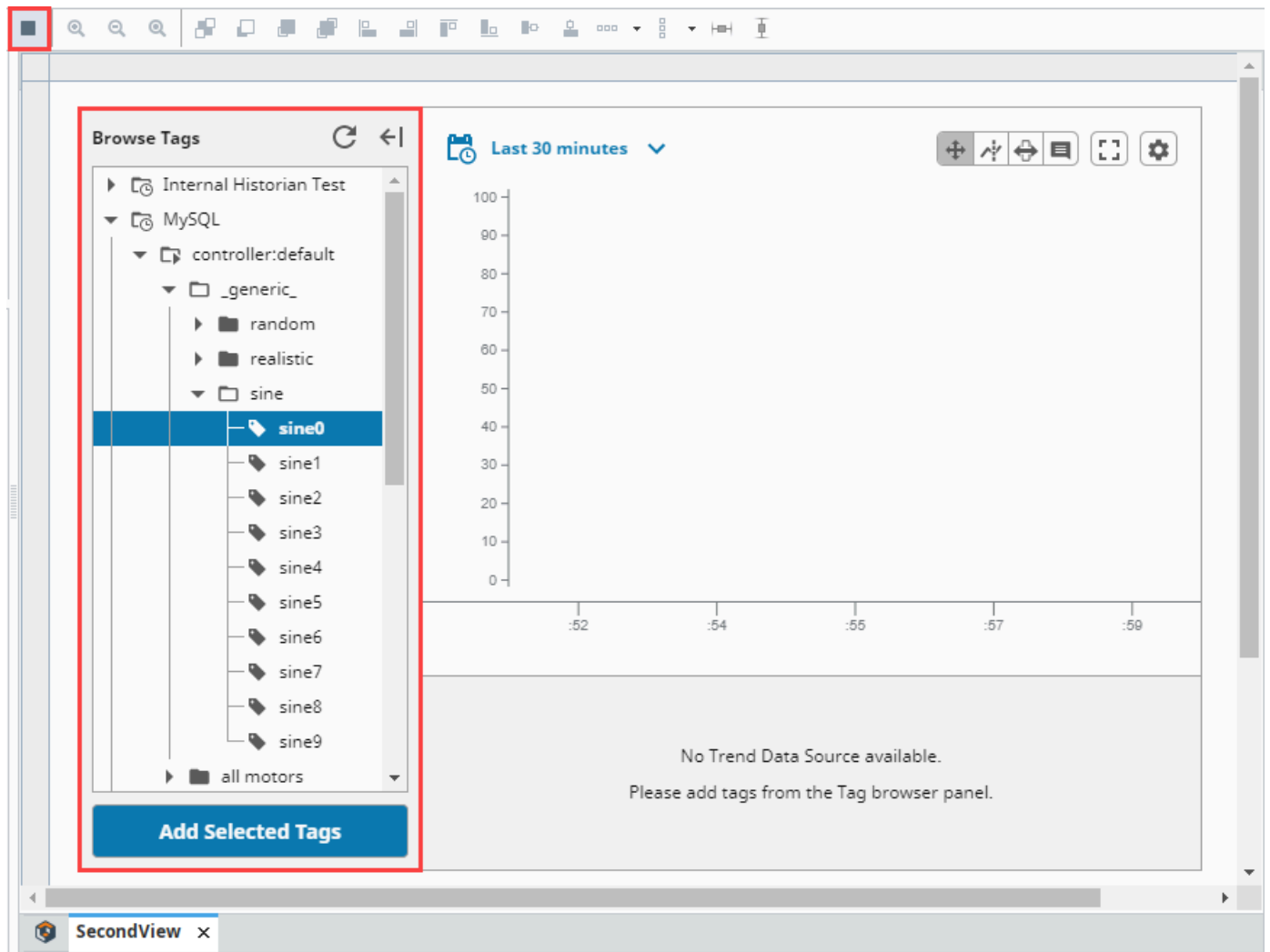
1. Right-click on the **Views** > **Test** folder and create a new view (i.e. **SecondView**).
2. Once you have your second view created, drag a **Power Chart** component on to your view.



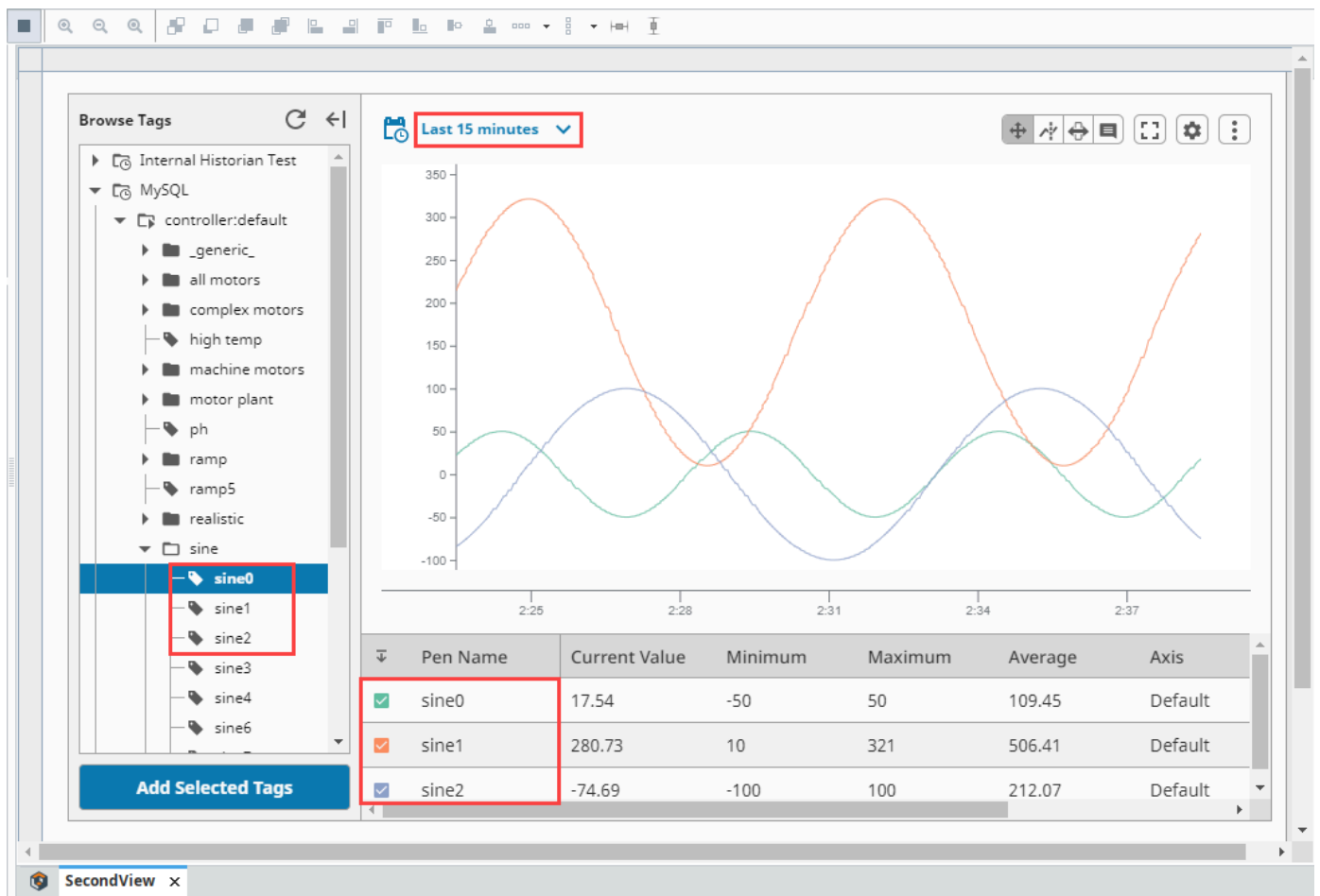
3. With the Power Chart selected, put your Designer in **Preview Mode** and click the Tags icon  in the top left of the chart. This will open the built-in Tag Browser in your Power Chart where you can add or drag Tags into your chart.

NOTE

You will need to have Tag History configured and stored in a database on the Tags you want to add to the Power Chart. If you don't see the Tag(s) you want to add in the built-in Tag Browser, you will need to enable **History** on the Tag in the Tag Editor.



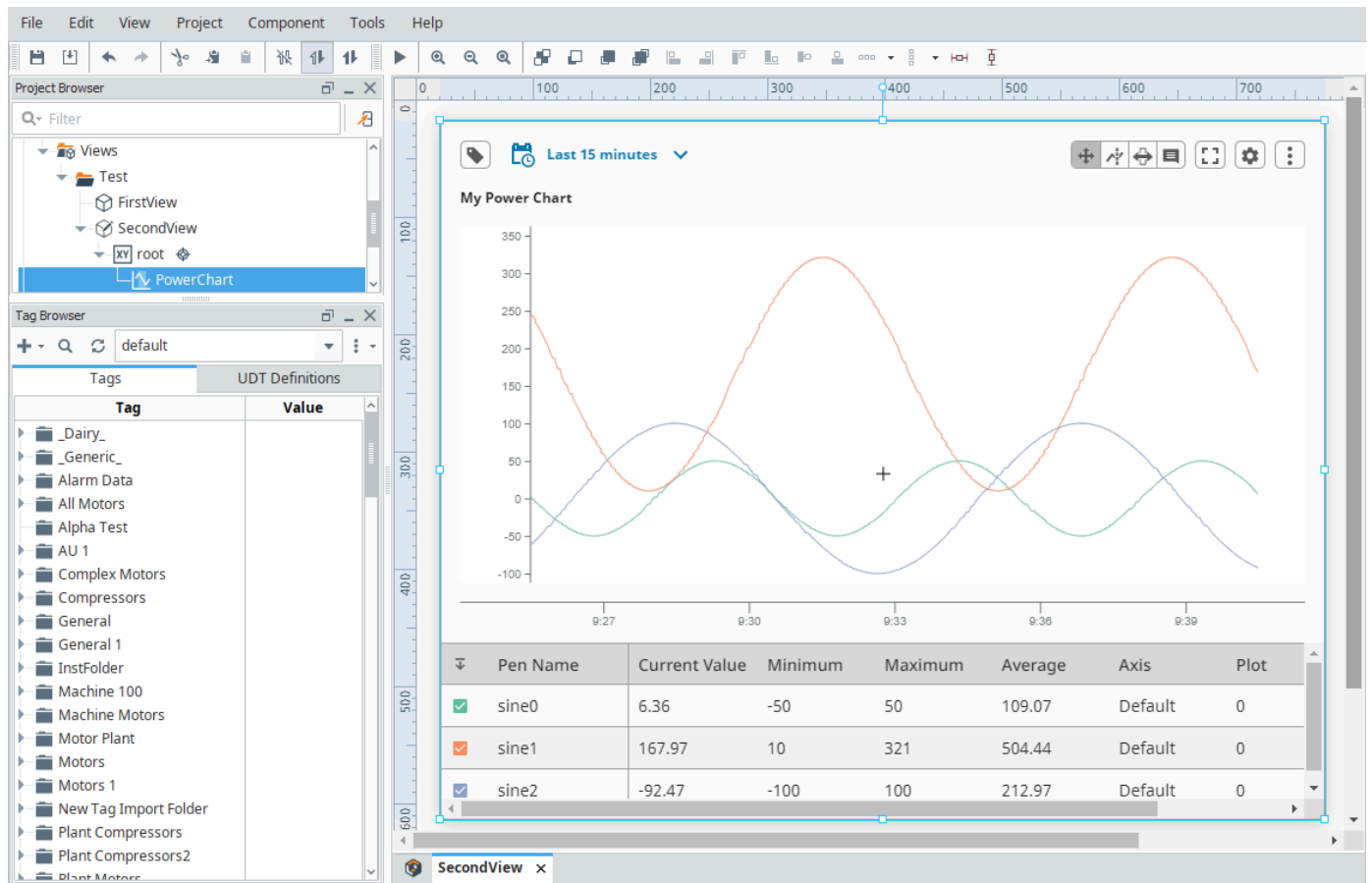
4. Select some tags and click the **Add Selected Tags**. You can also change the **Time Range Selector** if you want to show your tags in Realtime or Historical. In the following image, we added the **Sine0**, **Sine1**, and **Sine2** tags. We also selected **Realtime**, and **15 minutes** as our timeframe to display the Sine values on the chart.



5. You'll notice that the Power Chart will immediately start plotting data and the tags you added are shown at the bottom of the chart. That's all it takes to create a Power Chart. The Power Chart has a host of settings to customize how you can display your data: axes, plots, time range selector, and pen styles.

NOTE

The Power Chart component has a responsive breakpoint so it fits better on mobile devices. The default breakpoint is 750px and is configurable. For more information, go to the [Perspective Power Chart](#) page.



6. Save your project by selecting **File > Save**.

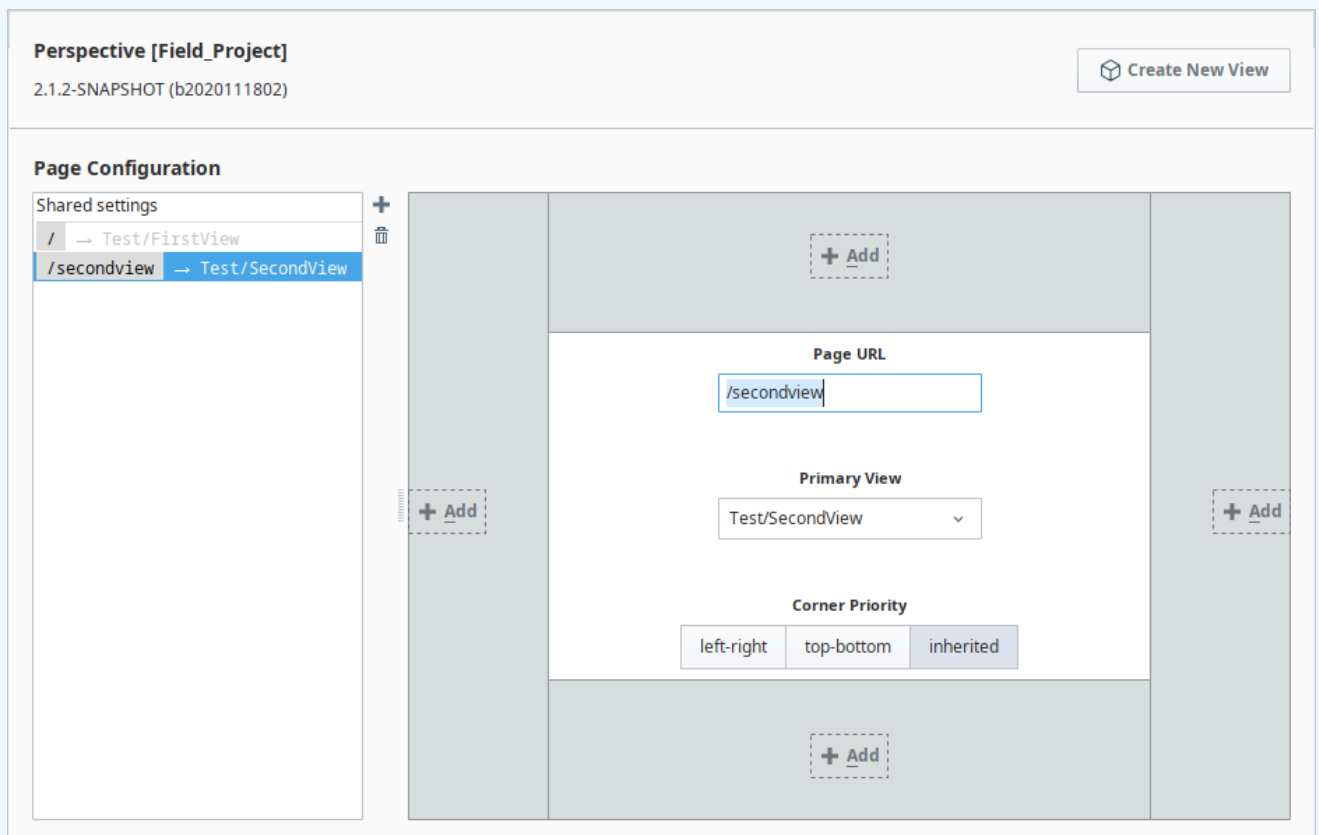
3. Navigating in a Perspective Session

A Page is the main navigational element in a Perspective Session and represents a collection of views that are displayed in a browser window. When we created the two views in the [Creating Views and Adding Components](#) section above, we also configured the Page URL associated with each new view. You have the option of configuring the Page URL in a separate step if you don't want to do it at the time you create your new view. This is addressed in [Pages in Perspective](#).

1. Open the **Page Configuration** by clicking the Tool icon (🔧) tab at the bottom left corner of your Designer workspace. You'll notice that the two views (i.e., FirstView and SecondView) also have their Page URLs created. This was done at the same time we created each view.

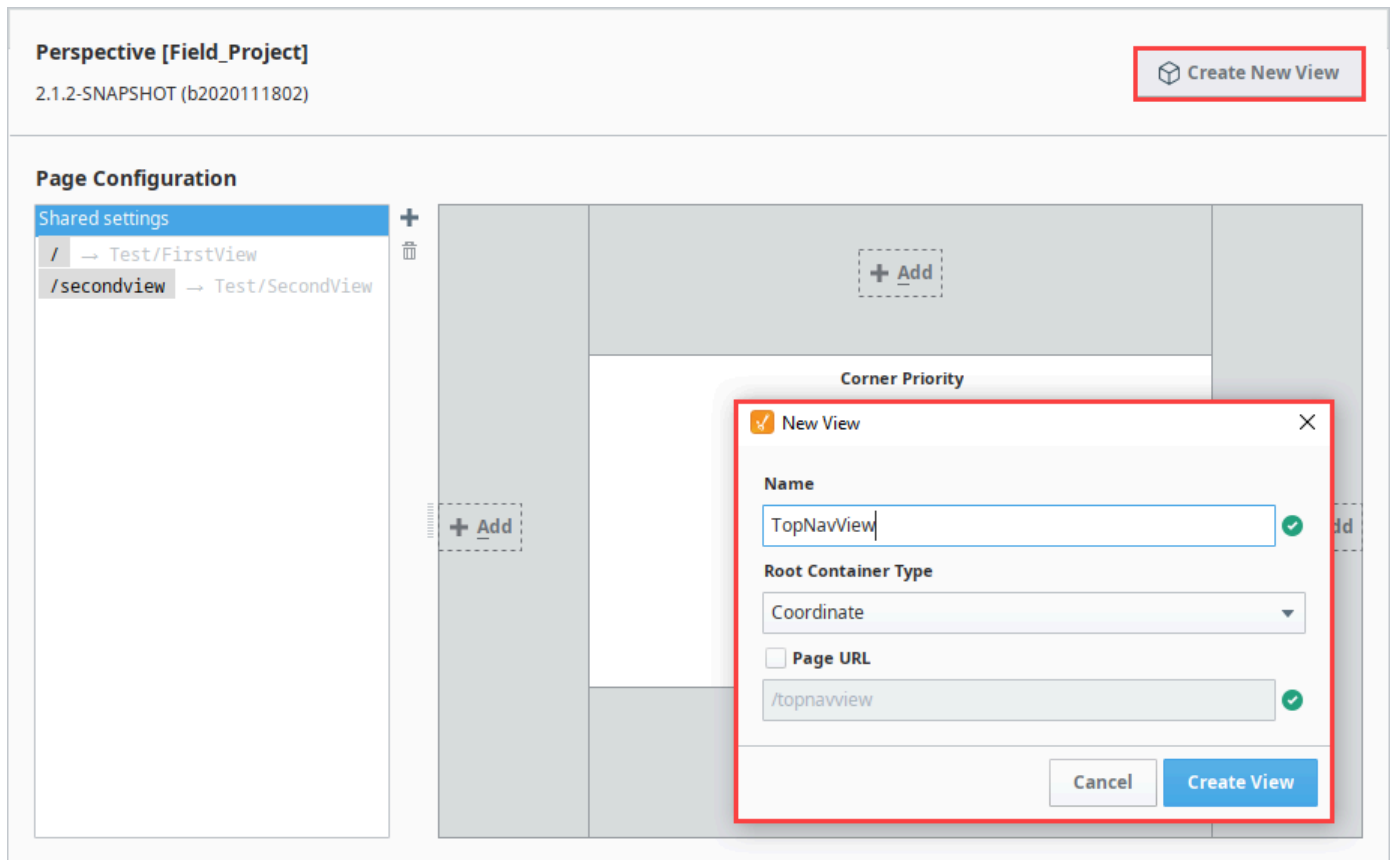
❗ FIRST VIEW MOUNTED TO THE ROOT

You'll notice the first View created in a project is automatically mounted to the root. The FirstView defaulted to "/" which denotes a "root" page.

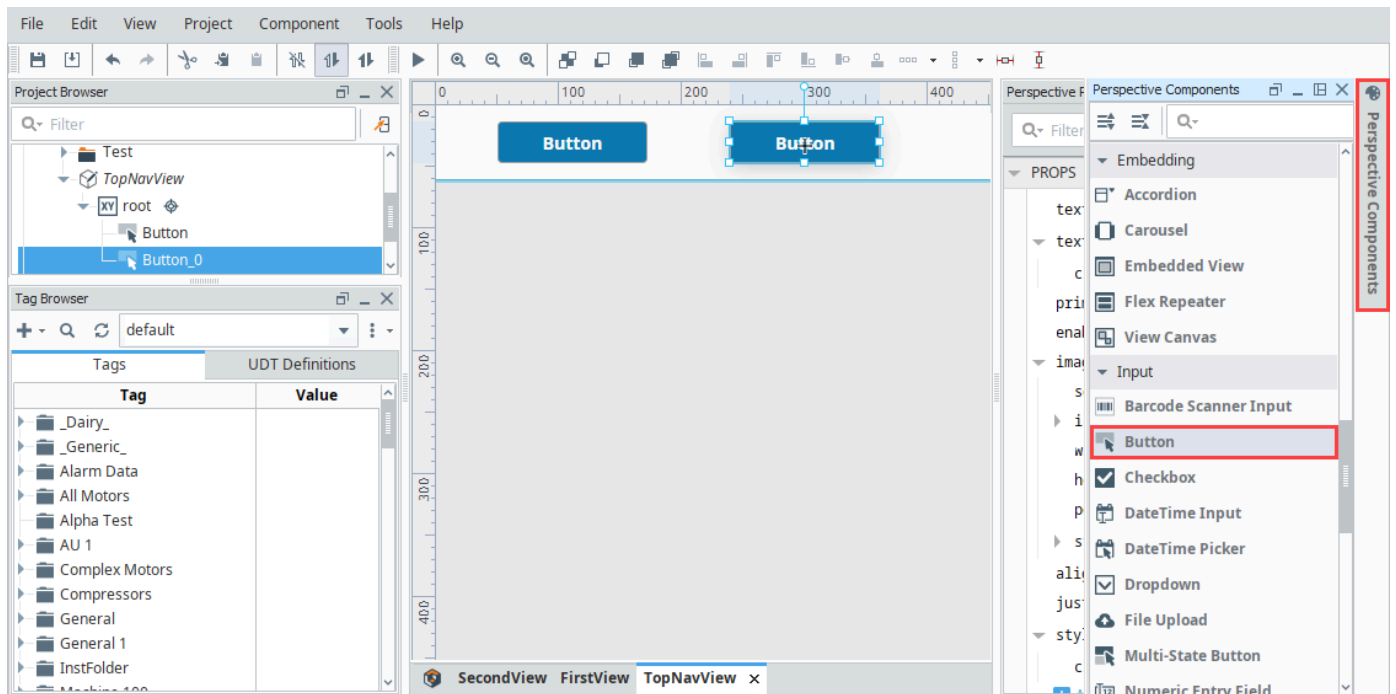


2. Now, let's create a navigation view (i.e., **TopNavView**) to be shared by all pages in our project. This page will contain components that will link to different pages, allowing users to navigate from one page to another in a Perspective Session.

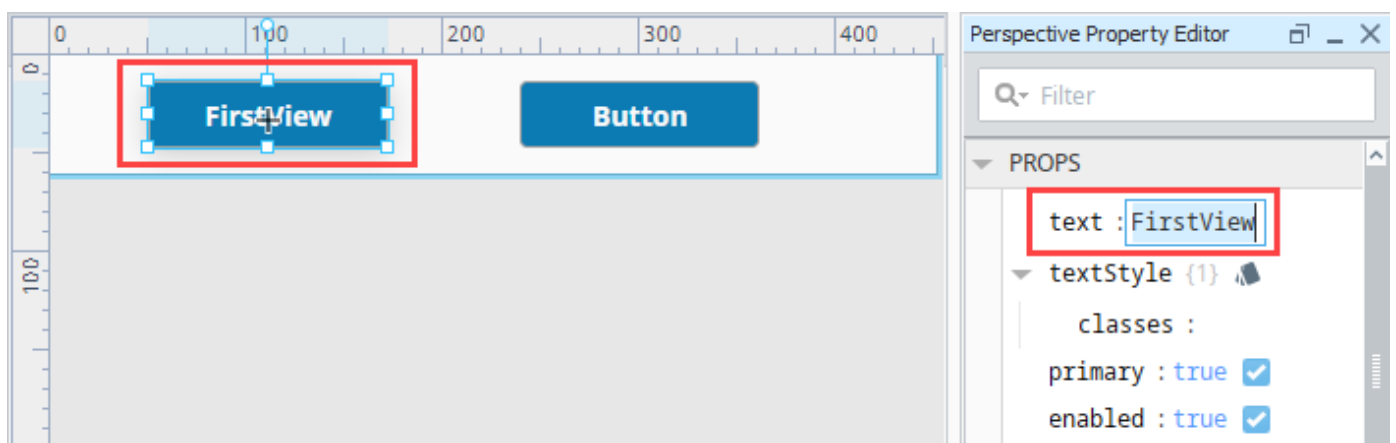
- i. At the top of the Page Configuration, click on **Create New View** (i.e., **TopNavView**).
- ii. Use the default **Root Container Type** (i.e., **Coordinate**).
- iii. Do *not* check the **Page URL** checkbox to create the URL page. This isn't necessary because it is a shared setting.
- iv. Click **Create View**.



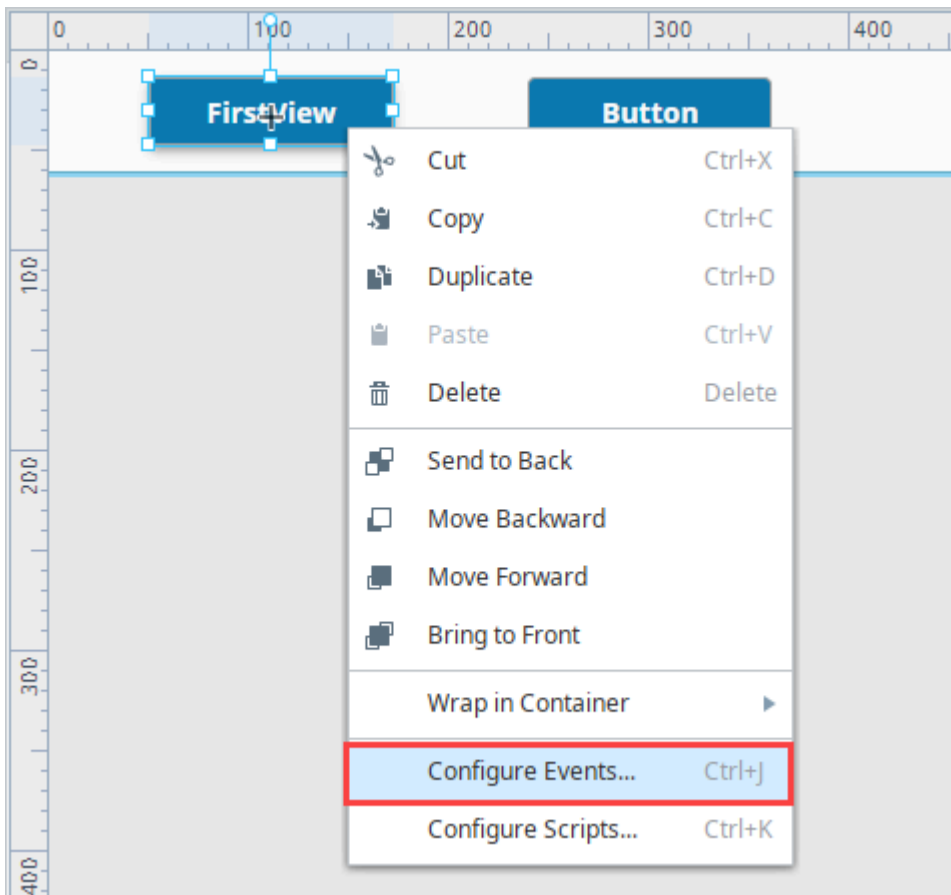
3. Go to the **Project Browser** and select your new view (i.e., **TopNavView**). This will show the handles for resizing the view. Resize the root container so the view looks like a banner or bar at the top of the workspace.
4. Add two **Button** components to navigate between pages. You can drag two Button components from the Perspective Component Palette or drag one in and duplicate (Ctrl D) the first Button.



5. Assign each Button component unique text. Select the first Button component, and change the **text** property to **FirstView** in the **Perspective Property Editor**.



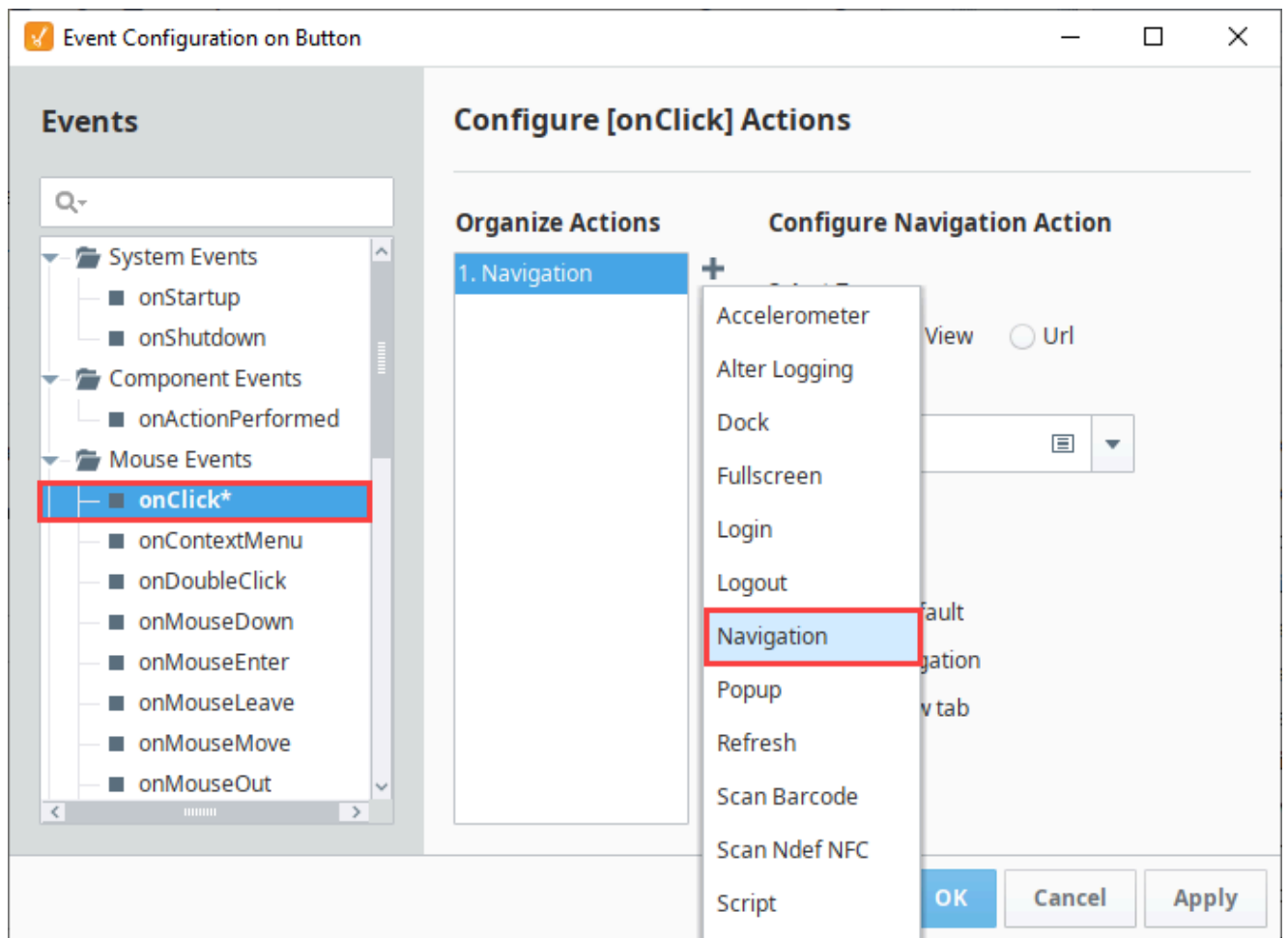
6. With the **FirstView** button still selected, right click and choose **Configure Events...** (You can also click **Components** on the top menubar and choose **Configure Events...**).



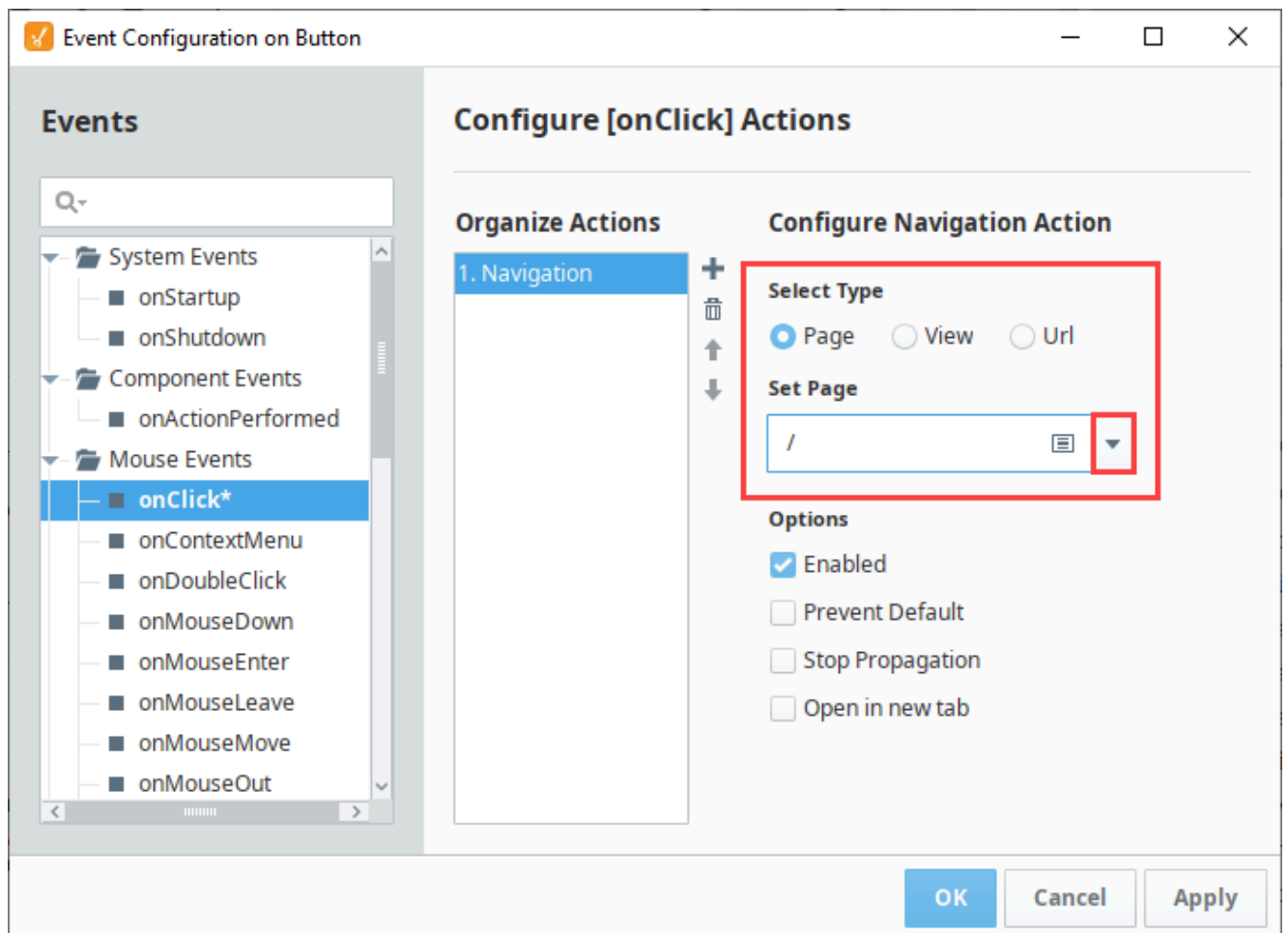
7. This opens the **Event Configuration on Button** window.

i. **Expand Mouse Events** and select **onClick**.

ii. **Under Organize Actions**, click the (+) icon and select **Navigation** from the dropdown.



- iii. Under **Navigation Mode**, click **Page**, and select the / from the dropdown which is the **Page** URL for the **FirstView**.
- iv. Click **OK**.

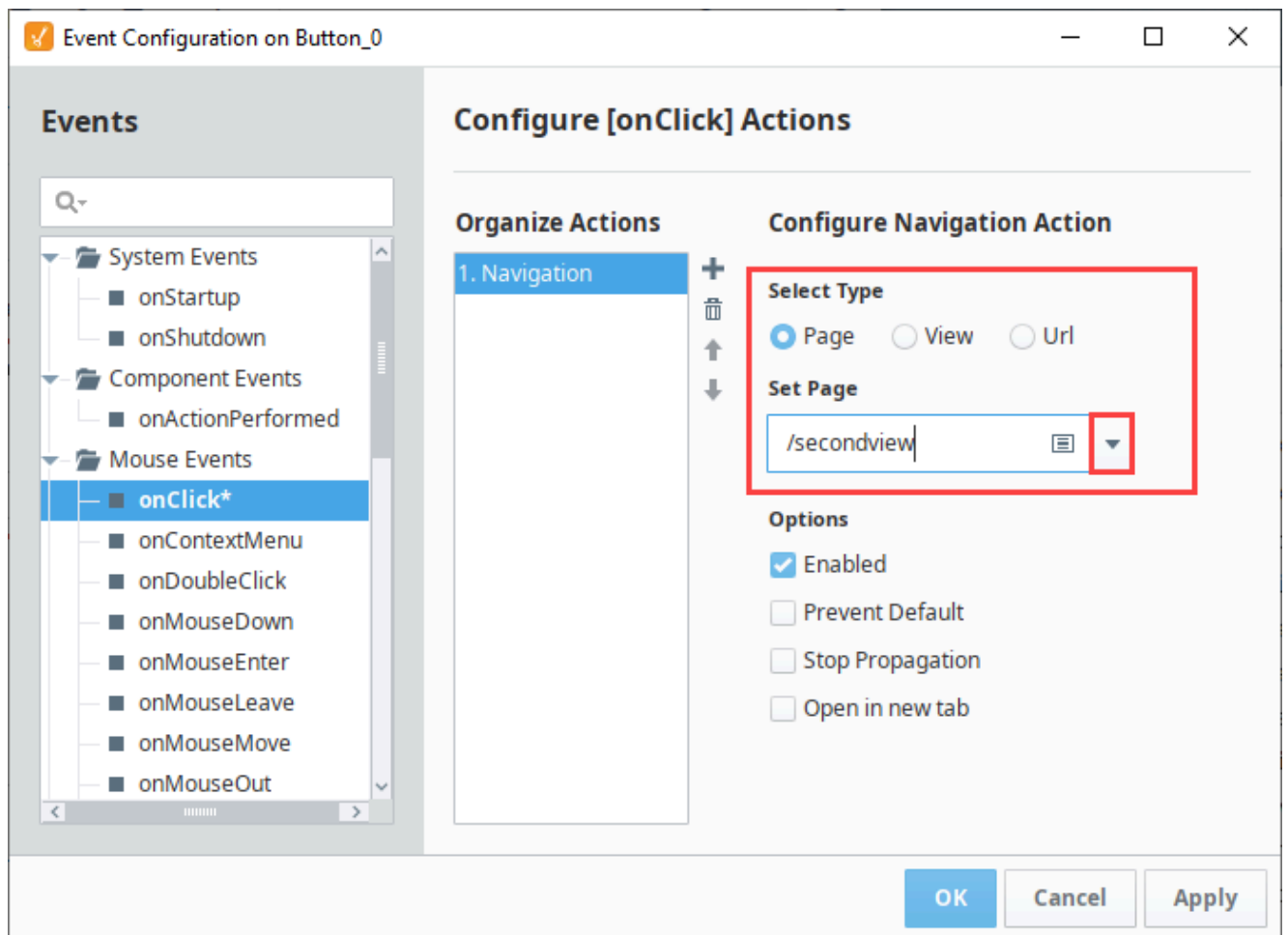


8. Repeat steps 3 and 4 for the second Button component:

- i. Select your second Button component, and change the **text** property to **SecondView** in the **Perspective Property Editor**.
- ii. With the **SecondView** button still selected, right click and choose **Configure Events....**

9. The **Event Configuration on Button_0** window will open.

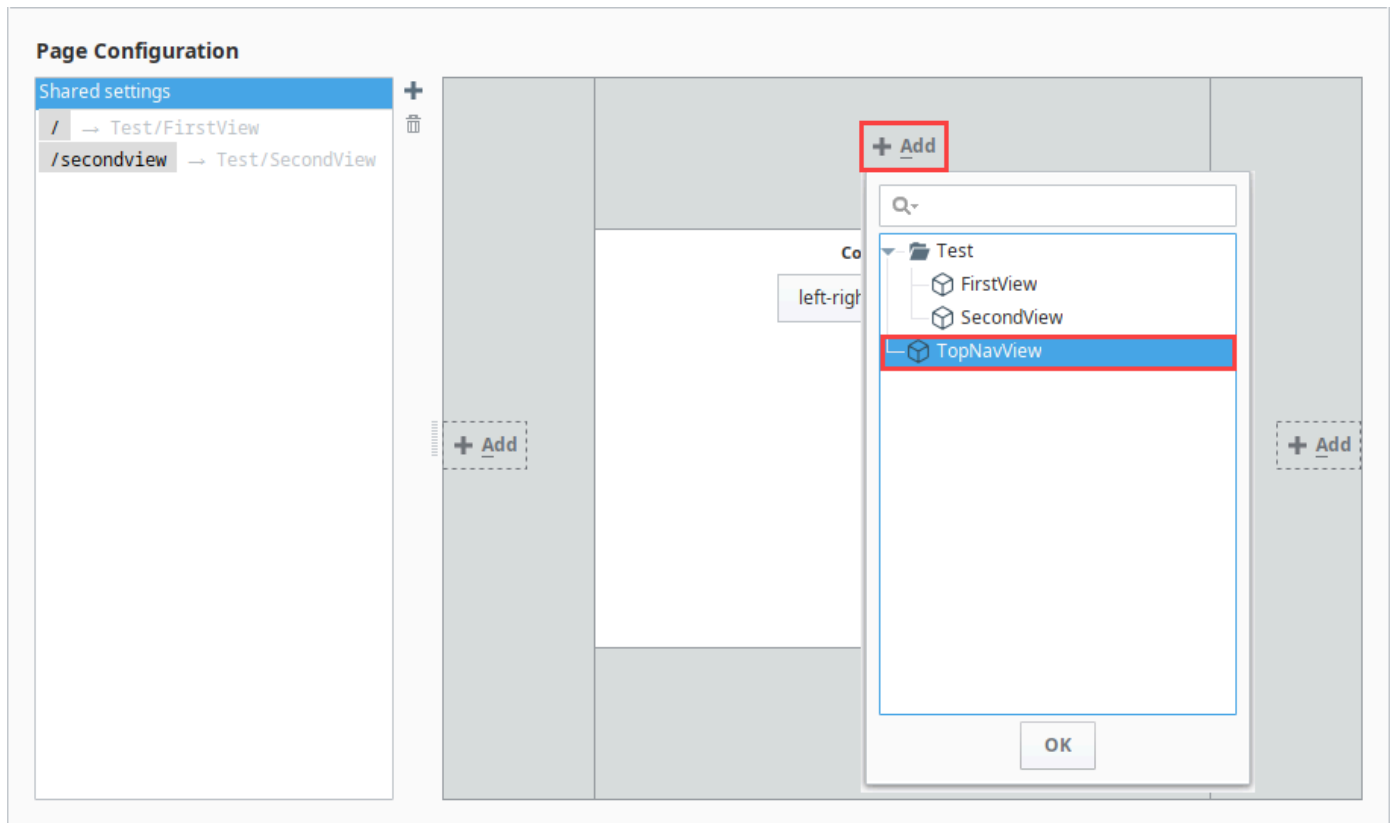
- i. Expand **Mouse Events**, and select **onClick**.
- ii. Under **Organize Actions**, click the (+) icon and select **Navigation** from the dropdown.
- iii. Under **Navigation Mode**, click **Page**, and select the **/second** from the dropdown which is the **Page URL** for the **SecondView**.
- iv. Click **OK**.



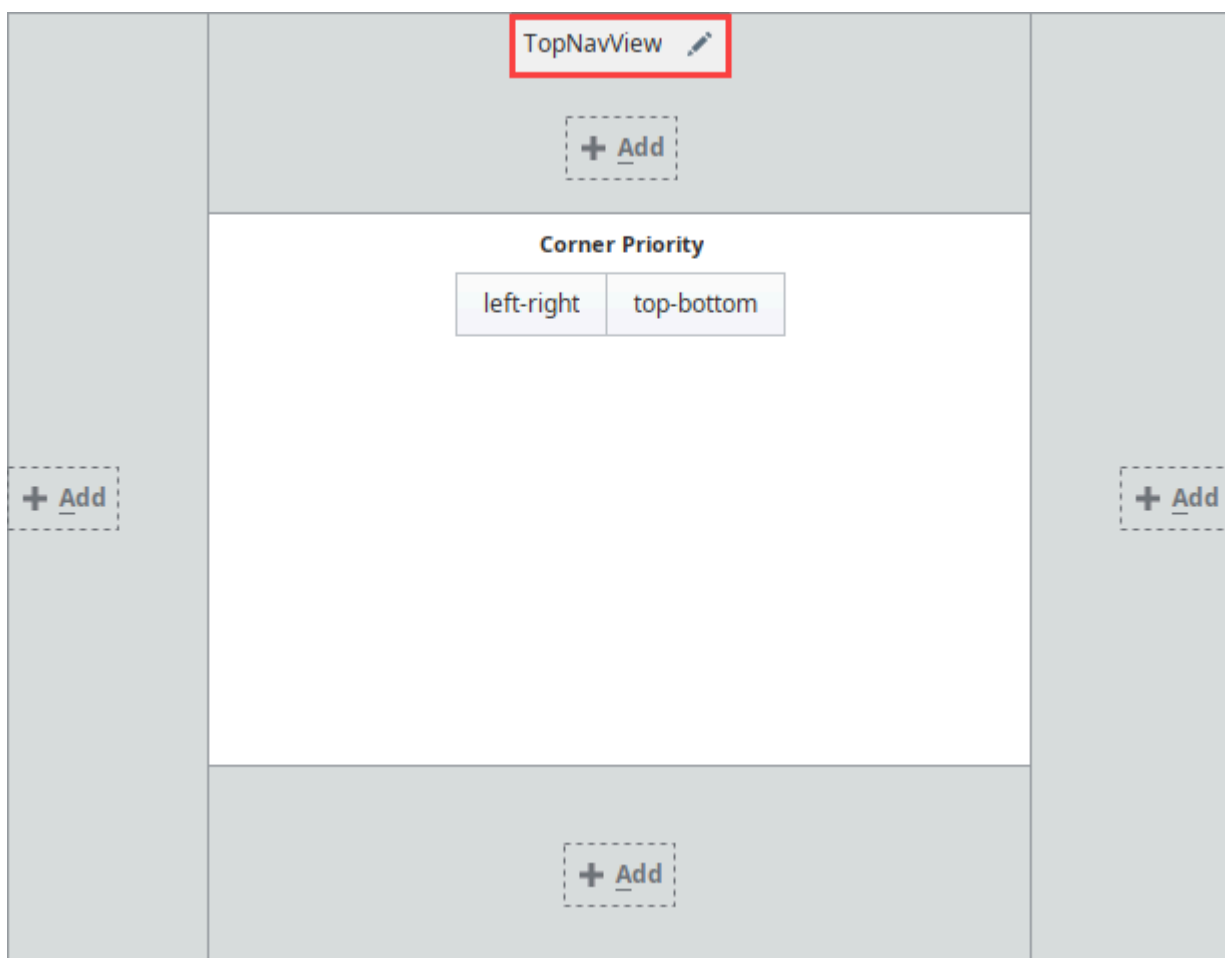
10. Set the navigation view (i.e., **TopNavView**) as a docked view so it appears on the top of every page in your project.
- Click on the Tool icon () at the bottom of your Designer workspace to open the **Page Configuration**.
 - Select **Shared Settings** under Page Configuration, click on the **+** Add button at the top of the Page Layout.
 - Select your navigation view (i.e., **TopNavView**) from the dropdown, and press **OK**.

(i) NOTE

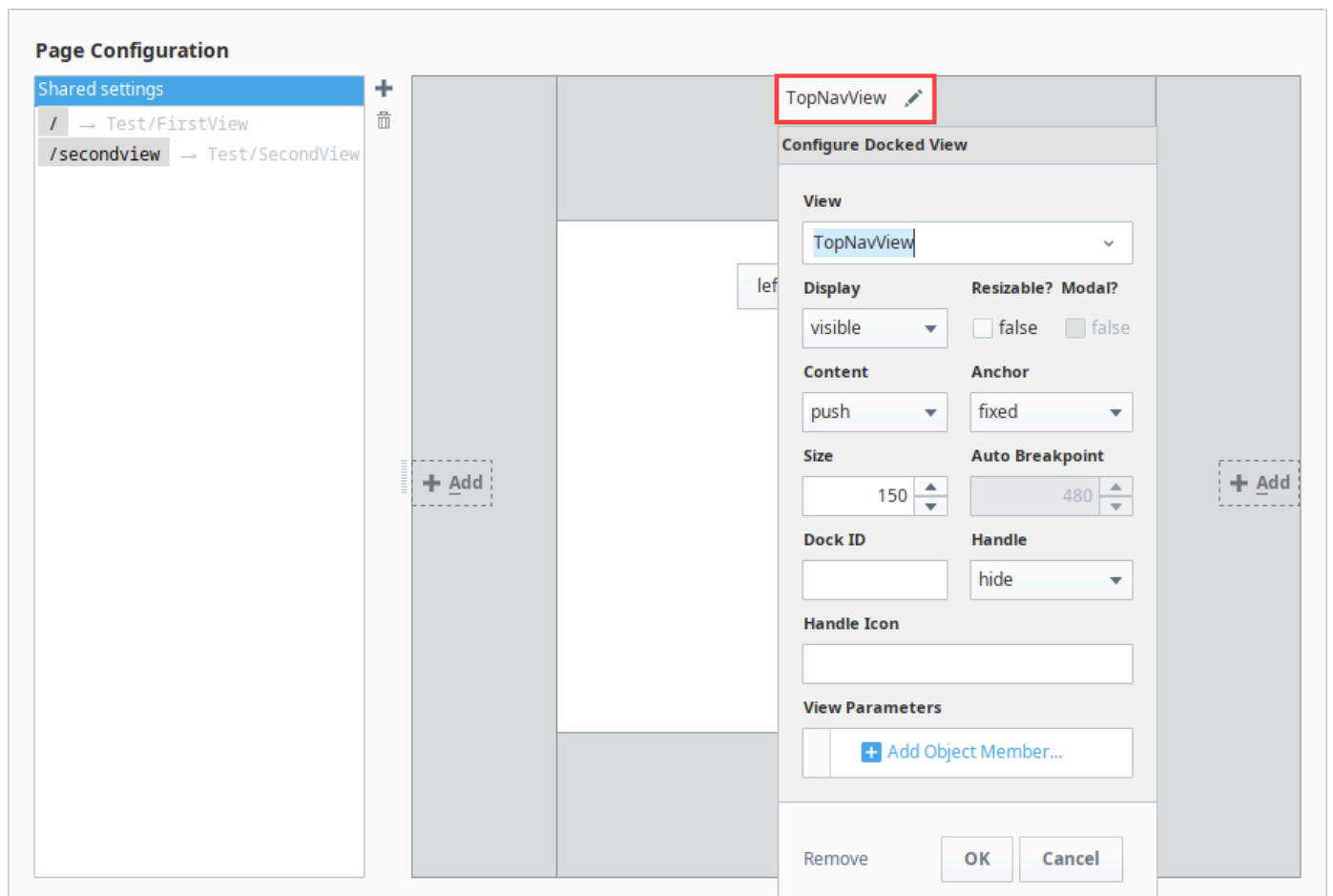
If the dropdown is empty or you are missing views, the **pages** (not views) were never created. Go back to Step 2 and configure your pages. Once your pages are configured, you will see them in the dropdown list.



Your navigation view (i.e., **TopNavView**) will appear at the top of your page layout.



11. You can edit any of the docked view properties by clicking on the name of view in the page layout. Edit any of the properties and click **OK**. Regardless of your **TopNavView's** height, the **Size** property here will determine the height of the view in your session.



12. **Save** your project. Now the **TopNavView** will be shared on all the pages of your Perspective Session.

4. Launching a Perspective Session

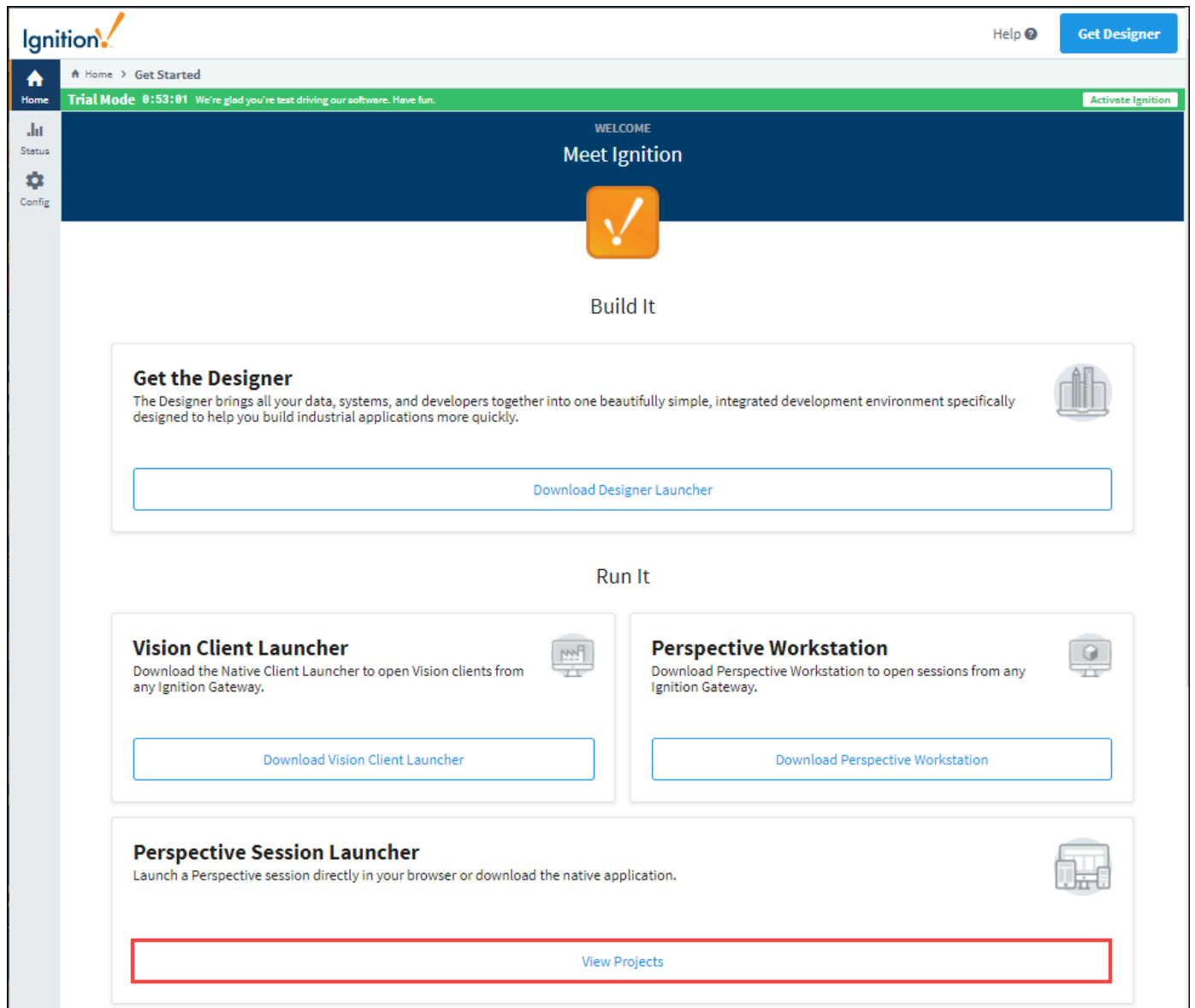
There are several ways to launch a Perspective Session:

1. From the **Home** tab on the **Gateway Webpage**, click the **View Projects** button below the **Perspective Session Launcher**. All the projects in your Gateway will be displayed. Click the **Launch Project** button for a project.
2. Manually enter the web address of the project in your browser.
3. From the **Designer** on the menubar, click **Tools > Launch Perspective > Launch Session**. This method is great if you are both a designer and a user.
4. Using **Perspective Workstation**, a standalone desktop application that allows you to launch and run Perspective Sessions directly.

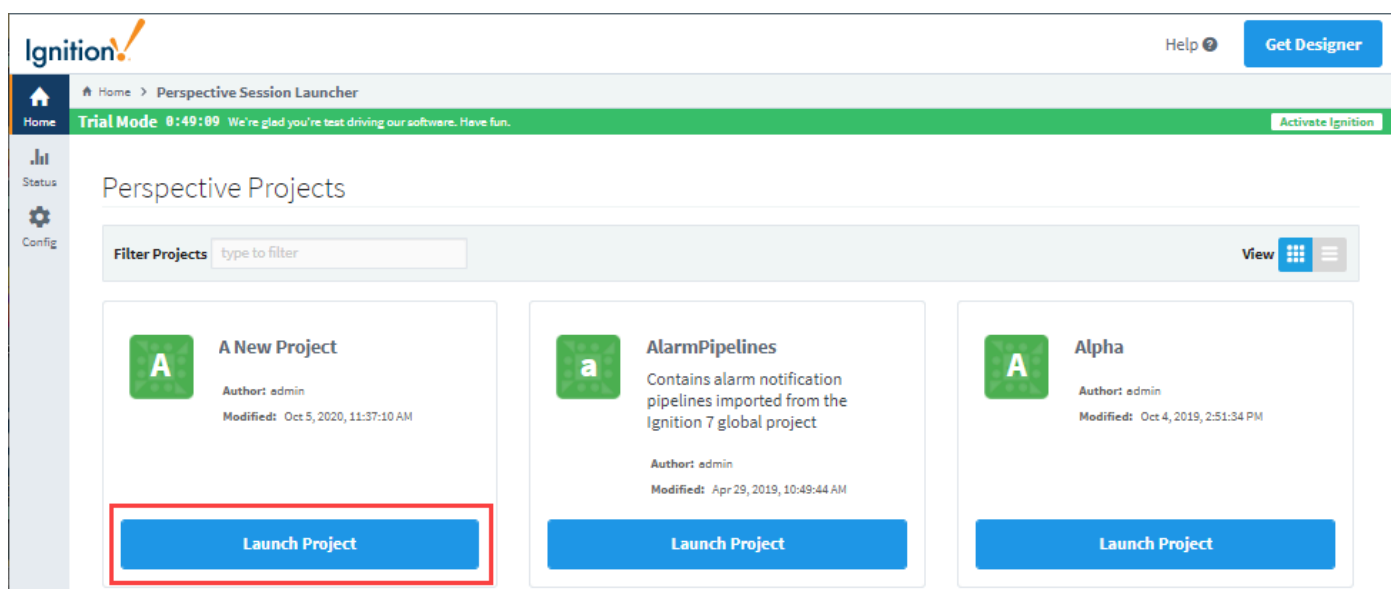
See [Launching a Perspective Session](#) for more information.

Gateway Webpage

1. Open a new browser window and enter the **IP address** of the Ignition project Gateway. You can also use **localhost:8088**.
2. On the Gateway Webpage you will see the **Home** page. Under the Perspective Session Launcher, click **View Projects**.



3. The window will refresh with a list of Perspective projects. Click the **Launch Project** button to launch a project in a Perspective Session.



Project Updates

If you have a Perspective Session open and a change was made in the Designer that was saved, an Update Notification window will appear in your session if this option is enabled in Project Properties of the Designer. Your session will automatically update in 30 seconds or you can click **Update Now**. If the Update Notification is not enabled, your session will update immediately.



Project Update • a few seconds ago ^

This project has been changed. Please save your work, this session will automatically update in 22 seconds.

UPDATE NOW

Installing and Upgrading Ignition

The installation process for Ignition is designed to be as simple as possible. You can find installers on our Downloads page: <https://inductiveautomation.com/downloads/ignition/>.

The Downloads page has the dedicated Installers (called "installer" for all major operating systems) and ZIP files. Both options install Ignition, but the installers are generally easier to use. Download an installer and head to the appropriate section below. For information on ZIP file installation instead, refer to the [ZIP File Installations](#) page.

Make sure your system meets our minimum system requirements (also found on our Downloads page).

New in 8.1.17

The installer now provides timestamped logs for installs and upgrades in the logs directory. Timestamped uninstall logs are stored in the root install directory.



TIP

Learn how to [verify that your installation of Ignition is genuine](#) at the bottom of this page.

Software Bill of Materials

New in 8.1.34

A Software Bill of Materials in SPDX 2.2 (JSON) format is now included when installing Ignition. The SBOM can be found in the installation directory at SBOM.txt. Third Party Licenses and Copyright Notices can be found at Notice.txt, also located in the installation directory.

Install Ignition

1. Download an installer from our [Downloads](#) page.
2. Run the installer.

Windows Installations

Linux Installations

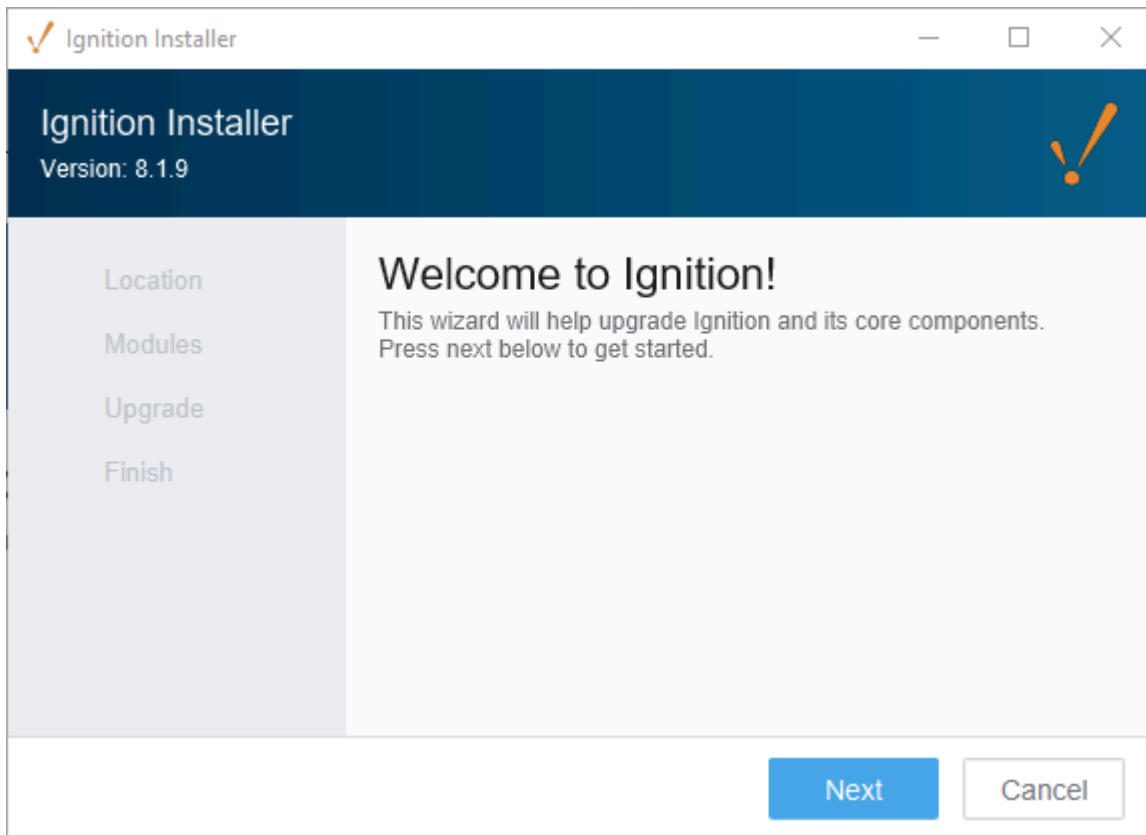
macOS Installations



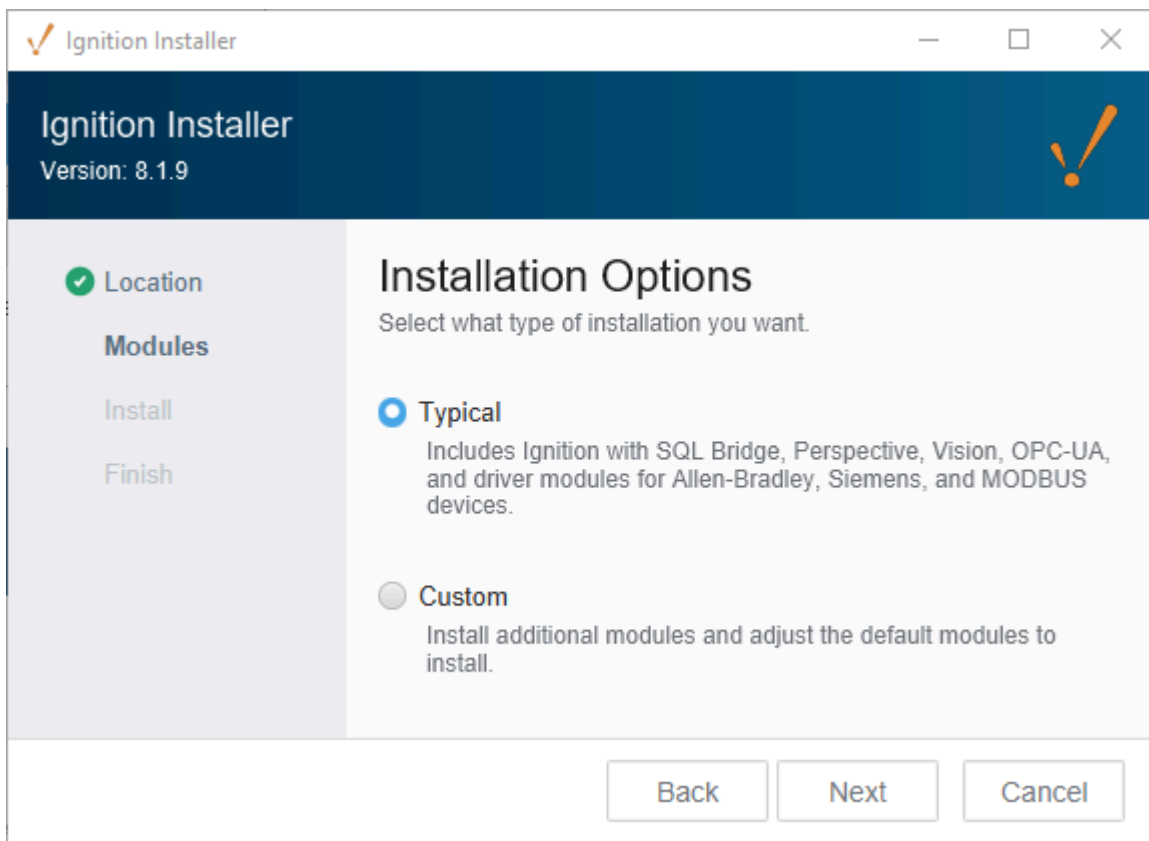
INDUCTIVE
UNIVERSITY

Installing Ignition on Windows

[Watch the video](#)



3. Select the installation type and follow the steps in the installation wizard. The **Typical** option includes a selection of many popular modules. Additional modules can be added after the installation, so we will use the **Typical** option for now.



...

INSTALLER SETTINGS BREAKDOWN

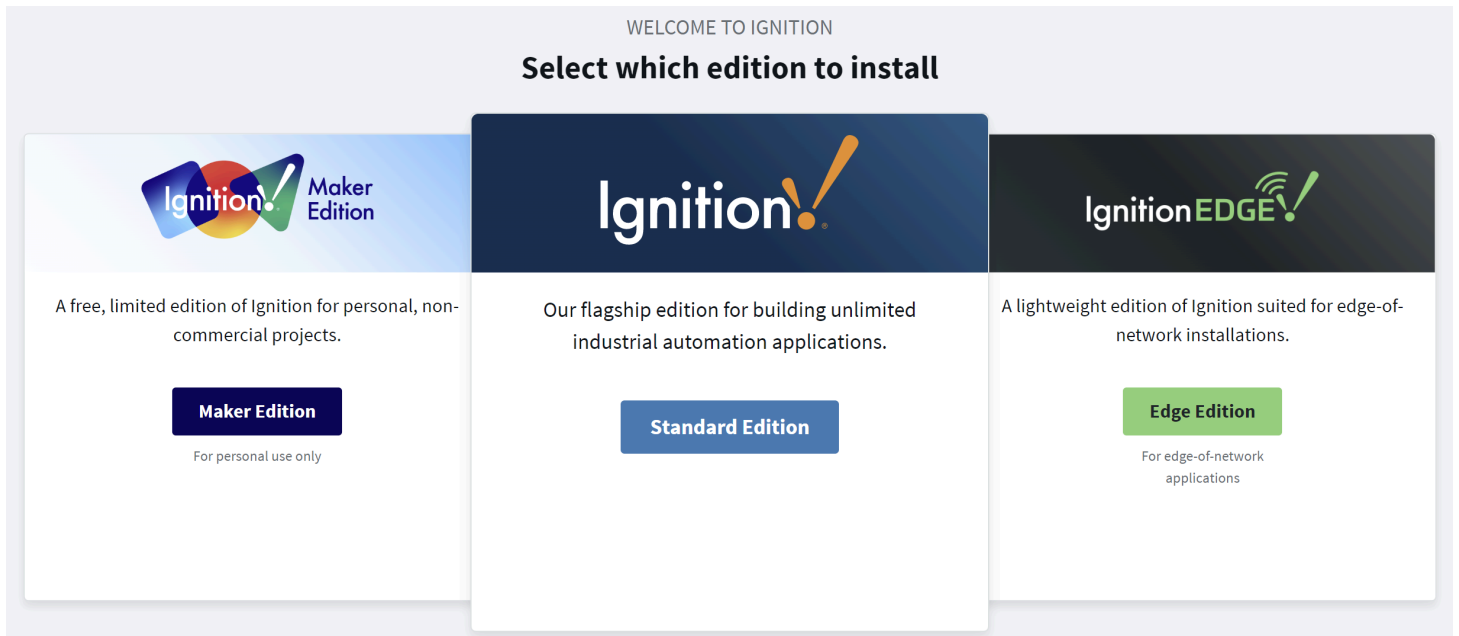
In most cases you can use the default settings in the installer. This section describes what each setting does.

- **Default Installation Directories** This determines the installation directory. You're free to pick the directory you wish. See the [Ignition Default Installation Directories](#) section below for the default paths.
- **Gateway Service Name (Windows Only)** This field allows you to choose the service name of Ignition, as it appears in the operating system's service listing.
- **Installation Options** Allows which modules are included in your base installation. Your choices are Typical and Custom. The Typical option will use a select list of commonly used modules. The Custom option allows you to install specific modules. In most installations the Standard option will suffice, but do note you can always add modules and remove modules after the installation process.
- **Start Ignition Now** Once the installer finishes, you'll be provided with an option to start the Gateway immediately. In most cases this is the desired option. You would only opt out of this choice if you didn't want the Gateway to start once the installer finishes.

Once finished, a web browser will open, and start off the System Commissioning process.

- **Install As a Service (Linux and MacOS only)** Allows you to install Ignition as a service, allowing you to manage certain actions via command line. It is recommended to opt into this setting. For Windows systems Ignition is installed as a service by default as it is a requirement for Ignition to run.

4. After the installation wizard finishes, a web browser will open and start the commissioning process. At this point you'll need to select your edition.



- **Standard Edition** - Unlimited edition of our flagship platform. Designed for commercial use.
 - **Edge Edition** - A lightweight edition of Ignition suited for edge-of-network installations.
 - **Maker Edition** - A free, limited edition of Ignition for personal, non-commercial projects.
5. Follow the steps in the commissioning process to complete installation. The System Commissioning process is a series of steps that further configure your Gateway. This process begins after installation or upgrading. In addition, it can be re-triggered via a password reset with the **Gateway Command-Line Utility**.

- **New in 8.1.1** **Set the Gateway Network Port**

As of 8.1.1, commissioning can now set the Gateway Network port in addition to the HTTP and HTTPS port.

Clean installs of Ignition will check the default ports for their availability. If no ports are available, the Gateway will iterate that port number until one is found that is available. These ports can be modified during the commissioning process.

Existing or upgraded Gateways will not search for available ports, and will result in a faulted Gateway.

NOTE

By default, Linux will not allow you to run on port 1024 and below. If you need to run on one of these ports, such as port 80, you can add the `CAP_NET_BIND_SERVICE` capability to your systemd service configuration override file.

- **Activate License (Maker Edition Only)** When installing Maker Edition, you'll be asked to provide a License Key (an 8 digit string) and an Activation Token (a considerably longer string). Both of these can be acquired for free from your Inductive Automation account: <https://account.inductiveautomation.com/>.
- **Create a User** This step asks you to create an initial user. This user will have full access to Ignition, although you're free to modify this user later. You'll need this user account to make changes to Ignition at all, so make sure you remember these credentials. Otherwise you'll need to perform a password reset: see the [Gateway Command-Line Utility](#) page.
- **HTTP Configuration** Allows you to specify the ports Ignition uses. By default, HTTP is **8088**, and HTTPS is **8043**.

Once you finish the commissioning process, your service will start.

SETUP COMPLETED

Start and Launch the Gateway Now?

Start Gateway

Ignition Default Installation Directories

The default directories for each operating system are listed below.

Windows

```
C:\Program Files\Inductive Automation\Ignition
```

MacOS

```
/usr/local/ignition
```

Linux

```
/usr/local/bin/ignition
```

MacOS and Linux Installation Directory

New in 8.1.10

Mac and Linux installations contain a `ignition.sh` file and `ignition-util.sh` file, which both contain some configuration parameters for the installation. Modifying these files is not advised, unless directed to by a member of our support team. Instead, an `ignition.conf` file, which is also located in the installation directory, should be used instead. Additionally, during installation on Mac and Linux, the installer will create a sudoer file at `/etc/sudoers.d/99-<serviceName>`, with the service name being Ignition-Gateway by default. This ensures the Gateway can be restarted without an interactive login. In most cases, the sudoer file does not need to be modified or maintained. However, more information can be found in the `ignition-util.sh` file in the installation directory.

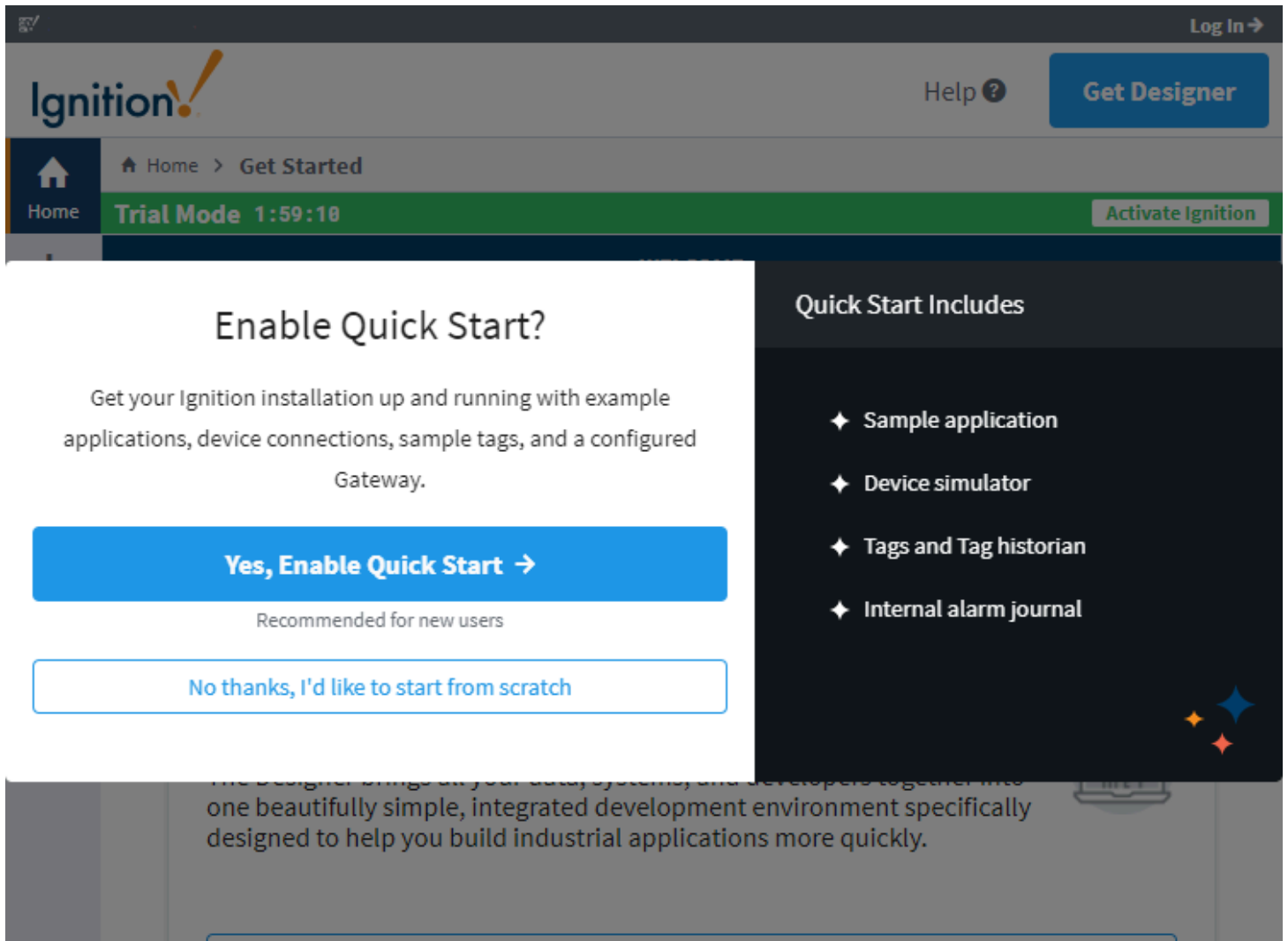
Quick Start Configuration

New in 8.1.0

Once the installation process has finished, you'll be redirected to the Gateway Webpage. From there you'll be asked to opt into the Quick Start configuration, which makes several configuration changes to the system. Quick Start can only be enabled upon a new installation.

The following changes are made once Quick Start is enabled:

- Creates an internal SQLite database connection.
- Configures a device connection to a **Programmable Device Simulator** instance, and adds Tags from the simulator into a Tag provider.
- Configures an internal alarm journal.
- Creates a sample project.



Start or Stop Ignition

After installing with the Installer, Ignition will have a service representing it on the operating system. By default Ignition will start when the system starts, but you can manually start and stop the system with the following terminal commands:

Windows


```
## The examples below assume "Ignition" is the service named used during
installation
## (which also happens to be the default service name).
## You may need to modify the examples below using your system's service name.

net start Ignition
net stop Ignition
```

Mac

```
/usr/local/ignition/ignition.sh start
/usr/local/ignition/ignition.sh stop
/usr/local/ignition/ignition.sh restart
```

Linux

```
## The examples below use the default installation directory

/usr/local/bin/ignition/ignition.sh start
/usr/local/bin/ignition/ignition.sh stop
/usr/local/bin/ignition/ignition.sh restart
```

Upgrade Ignition

Upgrading Ignition is as easy as running the installer. When you run the installer from the same directory as a previous install, our installers are able to detect that Ignition is already installed. If Ignition is already installed, the installer will ask if you would like to proceed with the upgrade. A wizard takes you through the upgrade in a similar workflow as installation workflow.

Before completing the upgrade process, it is **strongly advised** to take a [Gateway backup](#) of your system first.

Ignition installers can be used to upgrade any edition of Ignition (i.e., Edge, Maker, or Standard) with the exception of ARM as that will require a [ZIP installer for upgrading](#).

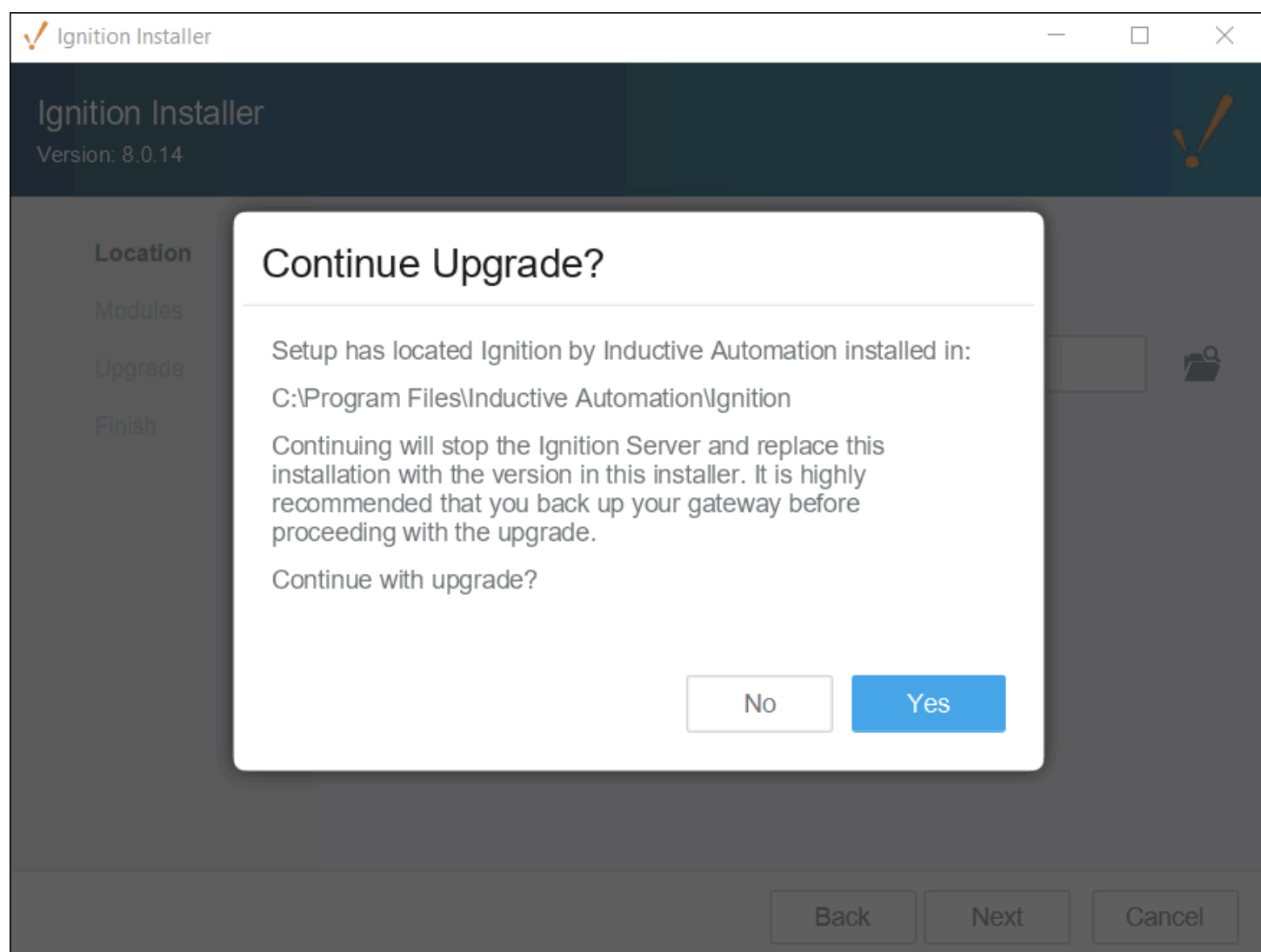
LINUX INSTALLER

Older versions of the Linux installer would place files across multiple different directories. Running an 8.0.14+ installer will move all those files to the specified installation directory, and symbolic link folders from the original directory will be created.

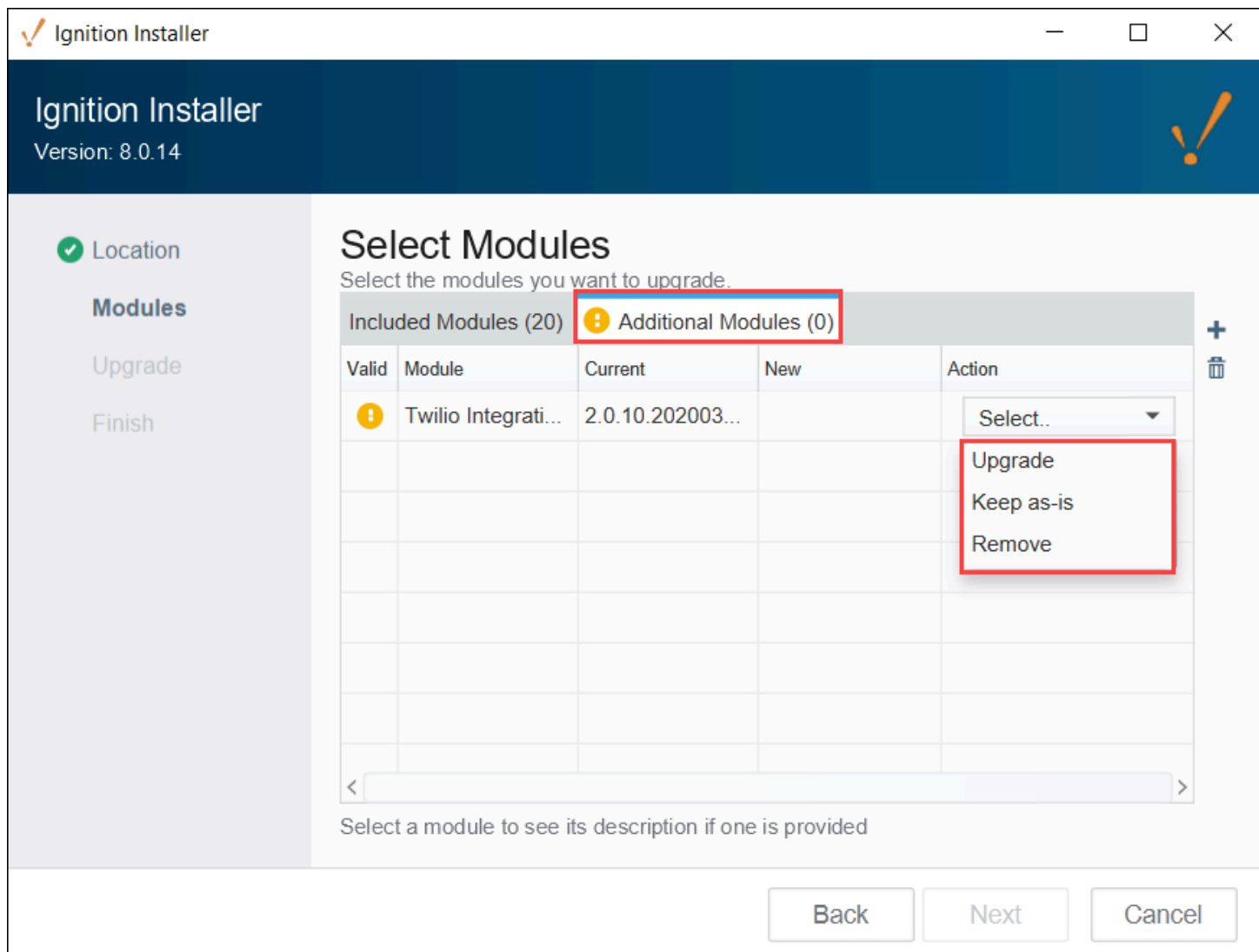
JDBC DRIVERS AND UPGRADING

Sometimes new versions of Ignition will incorporate new JDBC drivers, which are used to connect to SQL databases. When upgrading Ignition, the JDBC drivers will **not** be upgraded. The reason being, is that you should only need to change the JDBC driver if you upgrade your database. See the [JDBC Drivers and Translators](#) page for more details.

During the upgrade process, the Gateway will have to restart, so make sure to account for downtime when upgrading.



When you upgrade Ignition, you'll also be given the option to update any additional modules you currently have installed, including Third-Party modules. On the Select Modules screen, there is a tab for the modules included in your version of Ignition, and a tab for Additional Modules you may be using. Under the Action column, you can choose to upgrade or remove the module or leave it unchanged.



Updating License for an Upgrade

If you are updating from one major version to the next (i.e, upgrading from version 8.0.# to version 8.1.#) , you will need an updated license. You can do this before upgrading so there is no unlicensed time after the upgrade.

1. Let us know. You can reach Inductive Automation by phone at **(800) 266-7798**. Some Major upgrades include new modules or have modified the functionality of pre-existing modules. If your license needs to be updated, call us and we can guide you through it. If you are updating from one version to the next, or from 7.0.0 all the way to the latest version, we can talk you though what is different and what new functionality is available. See the New in this Version page for more specifics about what was updated in the various versions.

NOTE

If your license is covered by a support plan, you have Upgrade Protection which automatically keeps your platform and module versions up to date in our system. Refreshing your license on your Gateway will synchronize the license on your server with the updated license on our activation servers.

2. Reload your license. Once your license is updated in our system, go to your Config section of the Gateway webpage, and click System > Licensing. Click on the Update License icon . For a detailed guide on reloading a license, see updating a License on this page. If you are coming from an older version, the Gateway may look different. Don't worry, all this functionality is still there, but you may have to un-activate then re-activate instead if the Update License button is missing.

Upgrading a Redundant Pair

Ignition Versions 8.1.17+

When performing the upgrade locally, we recommend upgrading the Backup first. The Master will be unaffected and remain active during this process. After the upgraded Backup comes online, the Master can fail over to the Backup. It's also recommended to use Manual Recovery Mode to control when the Master takes over again. The active Backup can collect redundancy sync info, while the Master goes down for upgrade. Then, once both Gateways are on the same version again, the redundancy sync data can be passed from the Backup to the Master.

If the upgrade will be performed remotely using the Enterprise Administration Module, upgrading the Backup Gateway first allows the EAM controller to manually tell Clients/Sessions to communicate with the newly upgraded Backup Gateway, even though the Master will be a different version, allowing time to upgrade the Master.

1. Navigate to **Config > System > Redundancy** on your Master Gateway.
2. Click **Configure** and set the Recovery Mode to **Manual**. This keeps the Master Gateway inactive after it has been upgraded and allows you to decide when the Master Gateway can take over.
3. Click **Save Changes** and click **Confirm**.
4. Upgrade and start your Backup Gateway.
5. After the Backup Gateway has started again, navigate to **Status > System > Redundancy** on your Master Gateway.
6. Select **Force Failover** to set your Backup as your active Gateway.
7. Upgrade and start your Master Gateway.
8. Navigate to **Status > System > Redundancy** on your Master Gateway.
9. Confirm that the Master Gateway and Backup Gateway are connected.
10. Select **Assume Control** to set your Master Gateway as your active Gateway.

Ignition Versions Prior to 8.1.17

If upgrading version 8.1.0-8.1.16, following the recommended process above will still successfully upgrade your system, but based on how you resume your Master control, you may have duplicated

data from the slight overlap of having both Gateways up. Alternatively, you can use the following procedure to upgrade without disrupting your redundancy setup:

1. Navigate to **Status > System > Redundancy** on your Master Gateway.
2. Select **Force Failover** to set your Backup as your active Gateway.
3. Navigate to **Config > System > Redundancy** on your Master Gateway.
4. Adjust the **Startup Connection Allowance** setting to a large number. This will allow the Master to sit in the undecided state and not become active after being upgraded. Note the original value so you can reset it at the end of this process.

Config > System > Redundancy and Network Configuration

Redundancy Settings	
Mode	Master Enable or disable redundancy, and specify this node's role. There should be one master and one backup node per redundant pair. Independent turns off redundancy.
Standby Activity Level	Cold How the node should run when it is not currently the active node. If cold, the node will perform minimal operations until it becomes active. If warm, the node will run at a high level, reducing failover times.
Failover Timeout	10000 The time of inactivity, in milliseconds, before the backup assumes responsibility. (default: 10000)
Startup Connection Allowance	30000 The time in milliseconds that the system will wait at startup for a connection before making a decision on the node's responsibility level. (default: 30000)

5. Upgrade and start your Master Gateway.
6. Wait for the Master to fully initialize and become ready to take back over.
7. Shut down your Backup Gateway.
8. Navigate to **Config > System > Redundancy** on your Master Gateway.
9. Change the **Mode** setting to Independent.
10. Change the **Startup Connection Allowance** setting to 0.
11. Select **Save Changes**.
12. Select **Confirm**.
13. Now, change the **Mode** setting back to Master.
14. Select **Save Changes**.
15. Select **Confirm**.
16. Upgrade your Backup Gateway.
17. After the upgrade is complete, verify your Backup Gateway is connected and your redundancy is active.

18. Navigate to **Config > System > Redundancy** on your Master Gateway.
19. Return the **Startup Connection Allowance** setting to the original value.

Reset the Password

To reset the main password for the user with full privileges, use the Gateway Command-line Utility (gwcmd) utility. The 'gwcmd' utility triggers system commissioning, and prompts the user to reset the username and password for the main user (with full privileges) after the Gateway restarts. Linux and Mac OS platforms also use the 'gwcmd' utility for password reset. For more information, see the [Gateway Command-line Utility - gwcmd](#) page.

Uninstall Ignition

NOTE

Uninstalling Ignition will remove any projects or Gateway level configurations you made. If you wish to preserve anything, make sure to take a [Gateway backup](#) first.

To uninstall Ignition, run the uninstaller file. This file can be found in the main Ignition installation directory, for example:

Windows

```
C:\Program Files\Inductive Automation\Ignition\Uninstall.exe
```

Mac

```
/usr/local/ignition/Uninstall.app
```

Linux

```
/usr/local/bin/ignition/Uninstall.run
```

Verify that Ignition Software is Genuine

Code signing is applied to installers to help the OS prevent the installer from being run if it has been tampered with. Notarization is an additional step on macOS that works with Apple's systems to validate that the software has undergone their malicious code scanning.

❗ EXPECTED CERTIFICATE:

Name of signer: Inductive Automation, LLC

CN = DigiCert Trusted G4 Code Signing RSA4096 SHA384 2021 CA1

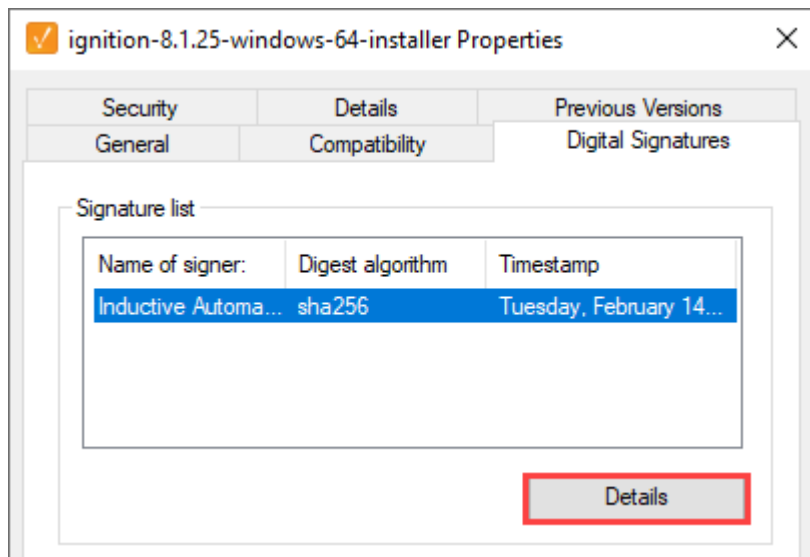
Windows

macOS Installations

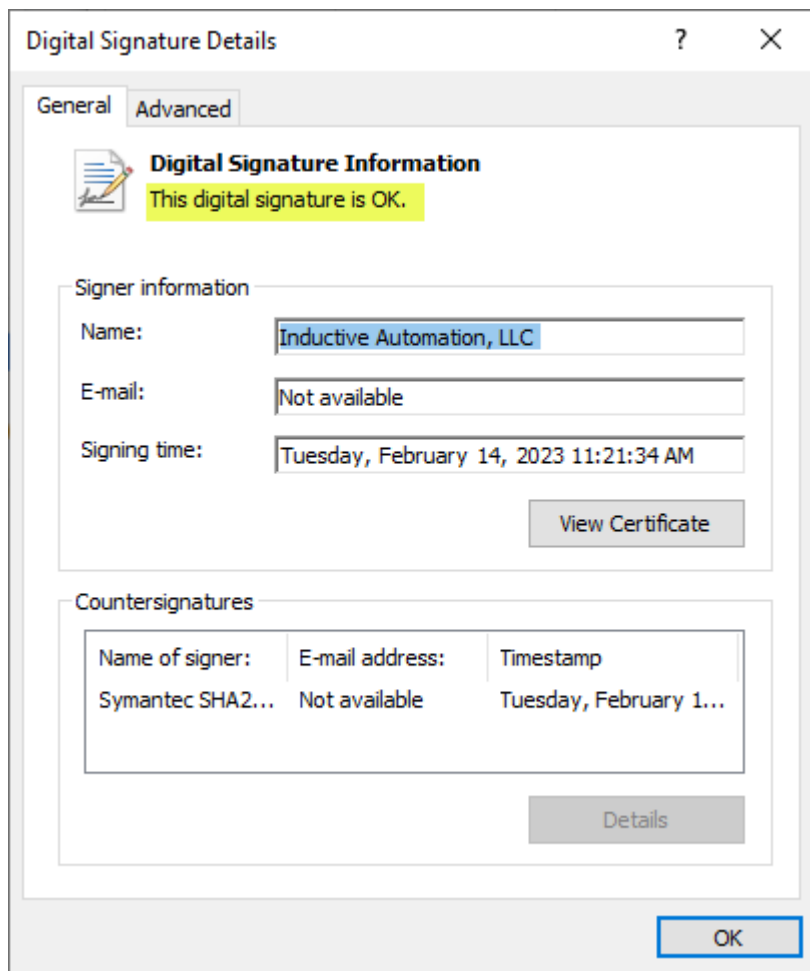
Linux Installations

View verification of the digital signature on Ignition's installer on Windows in the User Account Control popup when running the installer. It can also be viewed in the Digital Signatures section of the file Properties dialog.

1. Right-click on the installer and select **Properties**.
2. Under the Digital Signatures tab, select the signature from the Signature list and click **Details**.



3. If the text "This digital signature is OK" appears under the General tab, the installer is genuine and has not been manipulated.



Verify the Download is Authentic by Hash Comparison

The Ignition automated build process writes a precalculated fingerprint (hash) to the download site allowing users to verify the authenticity of the download file. On the [Downloads](#) page, click **sha-256** to view the hash for your selected installer file. You may also copy this hash to your clipboard for comparison.

System Installers (includes all modules)

 Microsoft Windows	Version	
Ignition - Windows Installer 64-bit (1.4 GB)	8.1.25	sha-256
Ignition - Windows 64-bit zip (1.4 GB)	8.1.25	sha-256
Ignition Edge - Windows 64-bit zip (1.4 GB)	8.1.25	sha-256

c7124792a0e9e54c0c3df2647bc8a4b7ea32
bb27d881b6e3fd43e0e72c20e1
[Copy to clipboard](#)

A SHA256 hash of the downloaded installer package can be compared to the values on the website with terminal commands such as:

```
PowerShell
```



```
Get-FileHash path\to\installer
```

macOS/Linux

```
sha256sum /path/to/installer
```

Verify an Ignition Module Download is Authentic - Advanced

Ignition modules are collections of files and resources that are loaded and run by the Ignition Platform. Inductive Automation publishes a number of modules and third-party authors can also create modules through the Ignition Module SDK. In order to help verify file integrity of these modules, code signing is applied to ensure that the contained files and resources within the module package have not been tampered with.

Verification of a given Ignition module's code signatures is handled automatically by the platform. The following manual verification steps (requires **openssl**) are listed below to provide a fuller understanding of the mechanisms at play:

1. Extract the **.modl** file as a zip file into a working directory.
2. Observe the contained **certificates.p7b** file which is a PKCS#7 package containing the certificate chain used for generating the signatures for each of the files within the **.modl** package.
3. Observe the contained **signatures.properties** file. Each line contains a path to a file within the **.modl** package and a base64-encoded signature for the file.
4. Extract the public key **signingPublicKey.pem** from the **certificates.p7b** file with the following steps:
 - **openssl pkcs7 -outform PEM -in certificates.p7b -print_certs > certificates.cer**
 - **openssl x509 -pubkey -noout -in certificates.cer > signingPublicKey.pem**
5. Decode the base64 content for a given file (from **signatures.properties**) into a signature file, e.g. **signature.sign**.
6. Verify the signature of the file with the following:
 - **openssl dgst -sha256 -verify signingPublicKey.pem -signature signature.sign <file from .modl>**
7. Observe a **Verified OK** message indicating that the signature from **signatures.properties** for the respective file is correct.

System Rollback

Downgrading Ignition is not a supported use case of the Ignition upgrade, and can lead to unexpected problems. If you need to roll back to a previous version of Ignition, it is recommended to instead perform a clean reinstallation and restore a Gateway backup from the same version or older. When reinstalling Ignition, the Ignition service should first be uninstalled, and the Ignition installation directory itself should be deleted.

Command Line Installations

Command line argument keys can be used to modify the installation process. Each operating system supports launching with arguments that contain some small modifications to ensure they are passed through to the installer:

- Windows: a `--%` arg should go before installer args
- Mac: requires `open -a` command with `--args` before the args to pass to the installer
- Linux: a `--` arg should go before installer args

Note that all arguments should be quoted.

Arguments Table

The table below lists the supported arguments.

Command Line Argument Key	Description	Possible Values	Example
unattended	The unattended install mode to run the installer in. It runs with all default values unless otherwise specified. The unattended upgrades remove known IA modules that are deprecated, leaves third party as they are, and upgrades currently installed bundled modules. Additionally, unattended upgrades do not trigger the Ignition service to start automatically. The Ignition service <i>must</i> be started by a user. The argument also works with the uninstaller, allowing for unattended uninstalls.	• graphical: run with full size installer window but no interaction • minimal: shows a progress bar only unless errors occur • text: feedback on the command line only, no GUI • none: completely silent, no feedback except for the log file when complete regardless of success or fail	"unattended=minir
textMode	Whether to run this installer in <i>interactive</i> text mode regardless of graphical support. Note that <i>unattended</i> supersedes this value.	true - run in text mode	"textMode=true"
location	Overrides the default installation directory, allowing you to specify where Ignition should be installed.	A fully qualified file path	"location=/usr/locæ
logLevel	The logging level for the installer. The default is	Options are (from most granular to least	"logLevel=trace"

Command Line Argument Key	Description	Possible Values	Example
	INFO, however more detail can be provided, revealing more information about the install process, as wells as the installer's internal operations.	granular): • trace • debug • info • warn • error	
user	Sets the ownership of the install to this user.	The username (as recognized by the operating system) that should be the owner of the installation.	"user=myUser"
serviceName	Sets the service name for the Gateway. Defaults to "Ignition". When running the graphical installer, the service is installed immediately on Windows and set for optional future installs on Linux/Mac. When using this key with the unattended key during an upgrade, the existing service on windows will be removed, and replaced by a new service.	my-gateway	"serviceName=my gateway"
autoStart	New in 8.1.22 Boolean that specifies whether or not to automatically start the Gateway after installing or upgrading is complete. By default, clean installs will automatically start the Gateway, but upgrades will	• true: starts the Gateway without any user input after installing/upgrading. • false: forces the install/upgrade to not automatically start the Gateway	"autoStart=true"

Command Line Argument Key	Description	Possible Values	Example
	not. Will revert to default behavior if this argument is not specified.	after install/upgrade is complete.	

Example Commands

The following examples demonstrate how arguments can be used when running the installer. For the purposes of these examples, any mention of a user directory will use **yourUser**, and the Ignition version number in the installer name will be **8.1.14**. These should be replaced by appropriate values when attempting to run the installer on your system. Additionally, depending on the Ignition version you are installing you may also need to remove the **x** from **x64** text.

Windows

```
# Runs the installer on command line only and requires user interaction.
C:\Users\yourUser\Downloads\ignition-8.1.14-windows-x64-installer.exe --%
"textMode=true"

# Runs the installer on command line, changes the default install directory, and
uses the "text" unattended mode.
C:\Users\yourUser\Downloads\ignition-8.1.14-windows-x64-installer.exe --%
"unattended=text" "location=C:\Ignition"
```

Mac

```
# Runs the installer on command line only and requires user interaction.
open -a /Volumes/IgnitionInstaller/ignition-8.1.14-osx-installer.app --args
"textMode=true"

# Runs the installer on command line, changes the default install directory, and
uses the "text" unattended mode.
open -a /Volumes/IgnitionInstaller/ignition-8.1.14-osx-installer.app --args
"unattended=text" "location=/Users/yourUser/Desktop/test"
```

Linux

Runs the installer on command line only and requires user interaction.

```
"/home/yourUser/Downloads/ignition-8.1.14-linux-x64-installer.run" --  
"textMode=true"
```

Runs the installer on command line, changes the default install directory, and uses the "text" unattended mode.

```
"/home/yourUser/Downloads/ignition-8.1.14-linux-x64-installer.run" --  
"unattended=text" "location=/home/yourUser/Desktop/test"
```

ZIP File Installations

Aside from the graphical installers, our downloads page features ZIP files that can be used to install and run Ignition. The ZIP file installation process differs from the graphical installation process. Using the ZIP files to install involves following the included README file, which contains instructions on how to use the content of the ZIP.

CAUTION

If you are performing an upgrade, it is important to **not** overwrite the **Ignition Configuration File (ignition.conf)**, as overwriting the ignition.conf file can cause the upgrade to fail.

Upgrading Ignition Service on Linux

Changed in 8.1.13

If you installed Ignition as a service on Linux, you will need to first remove the service before upgrading to a new edition and reinstalling the service.

```
./ignition.sh remove
```

Deploying Ignition to Another System

New in 8.1.2

Some users are interested in "preconfiguring" an Ignition Gateway. That is, configuring an instance of an installation, and then moving the installation files to a new server. This can be useful in cases where you're attempting to push out new Ignition installations via command-line interface to multiple separate systems. Normally, you need to install Ignition manually on each of these systems and walkthrough the commissioning process to create an initial user and select an Ignition edition, which defeats the purpose of this whole deployment strategy. Thus, the following example will demonstrate how to deploy a preconfigured Ignition Gateway that has already been commissioned and is ready to start up.

Requirements

NOTE

Although you can run the Ignition Gateway and Perspective Sessions on ARM-based Desktops (such as a Raspberry Pi), the Designer, Vision Client, and Perspective Workstation cannot be run on ARM-based Linux machines. Instead, the Designer, Vision Client, or Perspective Workstation will need to be installed and run from an Intel-based machine.

You'll need the following:

- A ZIP installer for the OS and Ignition Version you're planning to deploy on. ZIP installers can be found on our [Downloads](#) page.
- An existing Ignition Gateway where you already accepted the End User License Agreement (EULA). This existing Gateway must match the Ignition version of the system you're going to deploy to. If you don't have an install available, simply run through the installation process once, agree to the terms in the EULA, and finish the rest of the commissioning process. Accepting the EULA is important because you'll need to manually do this once.
- An Ignition Gateway backup from an existing system. We'll use this to define the initial user, and carry over any other resources we want on the new system. This can be a backup from the Gateway you used in the previous requirement. We'll use this backup to inject a user account that only you have credentials for.

Example

1. Locate the EULA hash from your existing Ignition Gateway. You will find the hash in the `commissioning.json` file in Gateway's installation directory:
`%installDirectory%/data/commissioning.json`.

NOTE

You'll only find this file on systems that have completed the commissioning process.

Part of the commissioning process involves accepting the EULA. The steps in this guide involve skipping the commissioning process, including the EULA. Thus, to be able to follow along with this guide you'll need to review the terms in the EULA and manually accept them on a separate system.

2. Open the file in a text editor, and copy the value for the `eulaSetup.eula` key, including the quotation marks. For example, assuming a file looked like the entry below, you would copy "XXXXXX" (the actual hash will be much longer). Save this value for later, as we'll need to reference it in a future step.

```
{
  "isCommissioned": "COMMISSIONED",
  "connections.useSsl": "false",
  "eulaSetup.eula": "XXXXXX"
}
```

3. Next, take the Ignition installer and unzip it into a directory that's easily accessible. This directory will be the **base directory** that we'll ultimately end up deploying to on one or more different servers.
4. In the base directory, edit the **Gateway's configuration file** (ignition.conf) using the text editor of your choice. The file is located at `%baseDirectory%/data/ignition.conf`.
5. Part of the installation process normally includes an edition selection, but we can bypass that by modifying the configuration file to explicitly state which edition the Gateway should be set to. Located the "Java Additional Parameters" line in the configuration file. The should have some entries like the following:

```
# Java Additional Parameters
wrapper.java.additional.1=-Ddata.dir=data
#wrapper.java.additional.2=-Xdebug
#wrapper.java.additional.3=-
Xrunjdpw:transport=dt_socket,server=y,suspend=n,address=*:8000
```

at the end of that section, add the following:

```
wrapper.java.additional.2=-Dedition=%value%
```

Where %value% is the edition, you want the deployed system to use: "edge" for Ignition Edge, and "maker" for Ignition Maker. For "standard" edition, simply omit the "=%value%" portion. For example, the file should look something like the following when configuring for Standard edition:

```
# Java Additional Parameters
wrapper.java.additional.1=-Ddata.dir=data
#wrapper.java.additional.2=-Xdebug
#wrapper.java.additional.3=-
Xrunjdpw:transport=dt_socket,server=y,suspend=n,address=*:8000
wrapper.java.additional.2=-Dedition
```

And the file would look like the following if deploying Edge edition:

```
# Java Additional Parameters
wrapper.java.additional.1=-Ddata.dir=data
#wrapper.java.additional.2=-Xdebug
#wrapper.java.additional.3=-
Xrunjdwp:transport=dt_socket,server=y,suspend=n,address=*:8000
wrapper.java.additional.2=-Dedition=edge
```

6. Save the changes you made to the configuration file.
7. Also in `%baseDirectory%/data/`, create a text file and call it `commissioning.json`.
8. Edit the newly created commissioning file, and set contents to the following:

```
{
  "isCommissioned": "COMMISSIONING",
  "connections.useSsl": "false",
  "eulaSetup.accepted": "true",
  "eulaSetup.eula": "xxxxxxxxxxxxxxxxxxxxxx",
  "authSetup.username": "admin",
  "authSetup.password": "[e811cfc7]fc3b28ad5f73331c94790129f0931437ac31d59376b0e4b15df580a8841ba165"
}
```

The JSON above does a couple of things, but notably defines an initial user on the new system. The user is **"admin"**, with a password of **"password"**. Later, we'll restore from our Gateway backup which will replace this initial user, but for now, we simply need to have a user to bypass commissioning.

9. In the same commissioning file, replace the value of the `eulaSetup.eula` key with the value you took from step 2.
10. Save the commissioning file.
11. At this point, you're ready to deploy. Take the contents of your base directory, move them to a new server, and perform a normal ZIP installation. When the Gateway starts, it will bypass the commissioning process and the Gateway will immediately startup.
12. Once the Gateway is running, you can use the **admin** user we configured earlier to access the newly deployed instance of Ignition. From here, you can restore from the Gateway Backup file mentioned in the requirements section of this guide. You can do this from **command-line** which would look something like the following:

```
gwcmd --restore /path/to/your/GWBK
```

Installing or Upgrading a Module



INDUCTIVE
UNIVERSITY

Installing or Upgrading a Module

[Watch the video](#)

Module Configuration

All module configuration is done from Gateway Webpage in the **Config > Modules** section. From here you can add, remove, and restart modules. Modules integrate their settings into the Gateway configuration tree, and therefore do not offer settings in this section.

The screenshot shows the Ignition Gateway Webpage interface. The left sidebar contains navigation links for Home, Status, Config, and various system settings. The main content area displays the 'Module Configuration' section, which lists installed modules and their status.

Inductive Automation

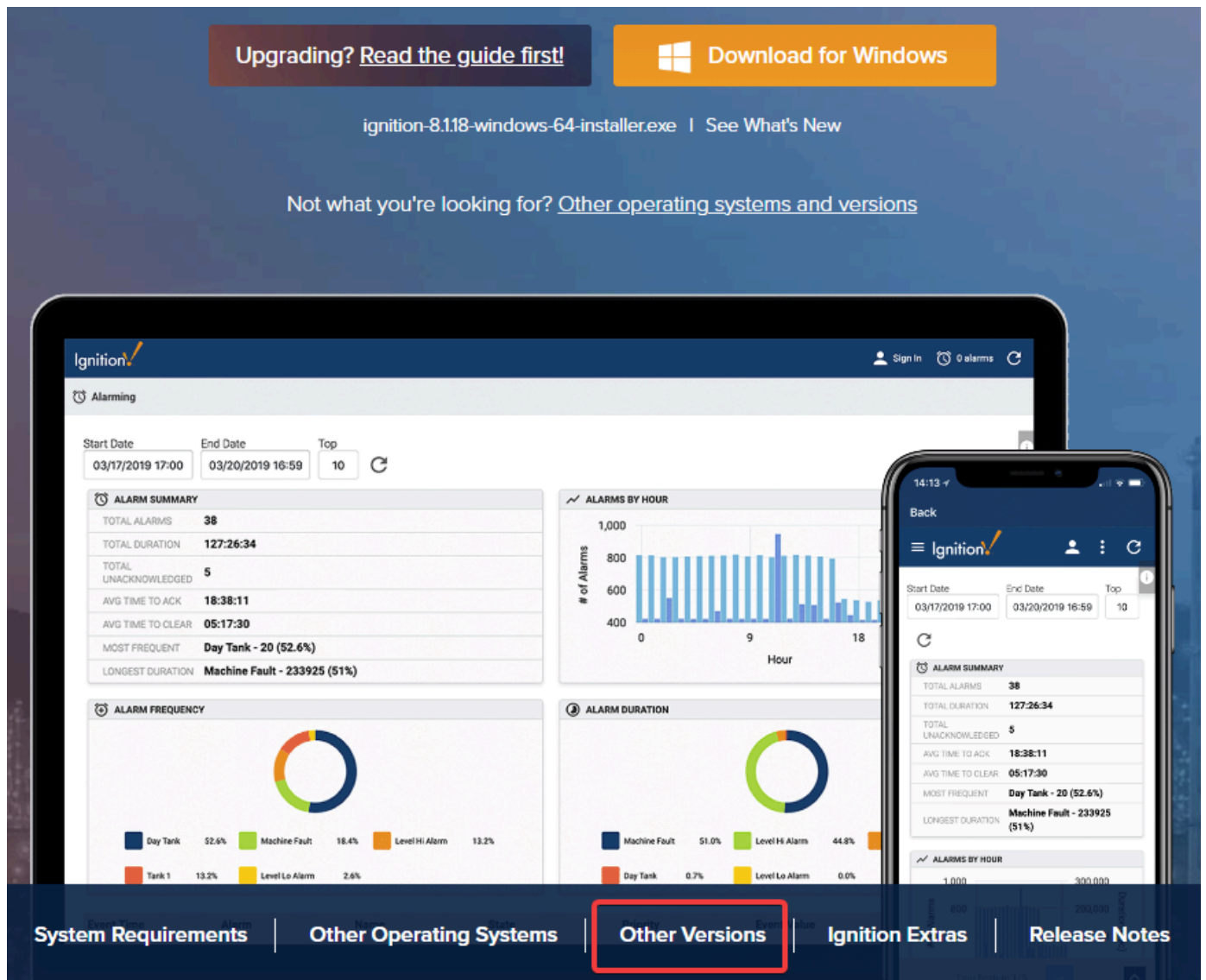
☒ View Certificate

Name	Version	Description	License	State		
Alarm Notification	5.0.0 (b2019031312)	Provides alarm notifications via email	Activated	Running	More ▾	restart
Allen-Bradley Driver	5.0.0 (b2019031312)	Allen-Bradley driver suite for the OPC UA module.	Activated	Running	More ▾	restart
DNP3 Driver	3.0.0 (b2019031312)	A driver supporting DNP3 (Distributed Network Protocol) device.	Activated	Running	More ▾	restart
Enterprise Administration	3.0.0 (b2019031312)	A remote Gateway administration system, allowing you to manage Gateways and automate tasks from a single controller.	Activated	Running	More ▾	restart
Logix Driver	4.0.0 (b2019031312)	A driver for communicating with Allen-Bradley Logix5000 series PLCs, and includes firmware version 21 support	Activated	Running	More ▾	restart
Modbus Driver	6.0.0 (b2019031312)	A driver for communicating with devices via Modbus-TCP.	Activated	Running	More ▾	restart
Omron Driver	3.0.0 (b2019031312)	A driver for Omron NJ series PLCs.	Activated	Running	More ▾	restart
OPC-UA	8.0.0 (b2019031312)	Provides Ignition's OPC UA client and server functionality.	Activated	Running	More ▾	restart
Perspective	1.0.0 (b2019031312)	A module that provides modern, responsive html based graphical interfaces for Ignition projects.	Activated	Running	More ▾	restart

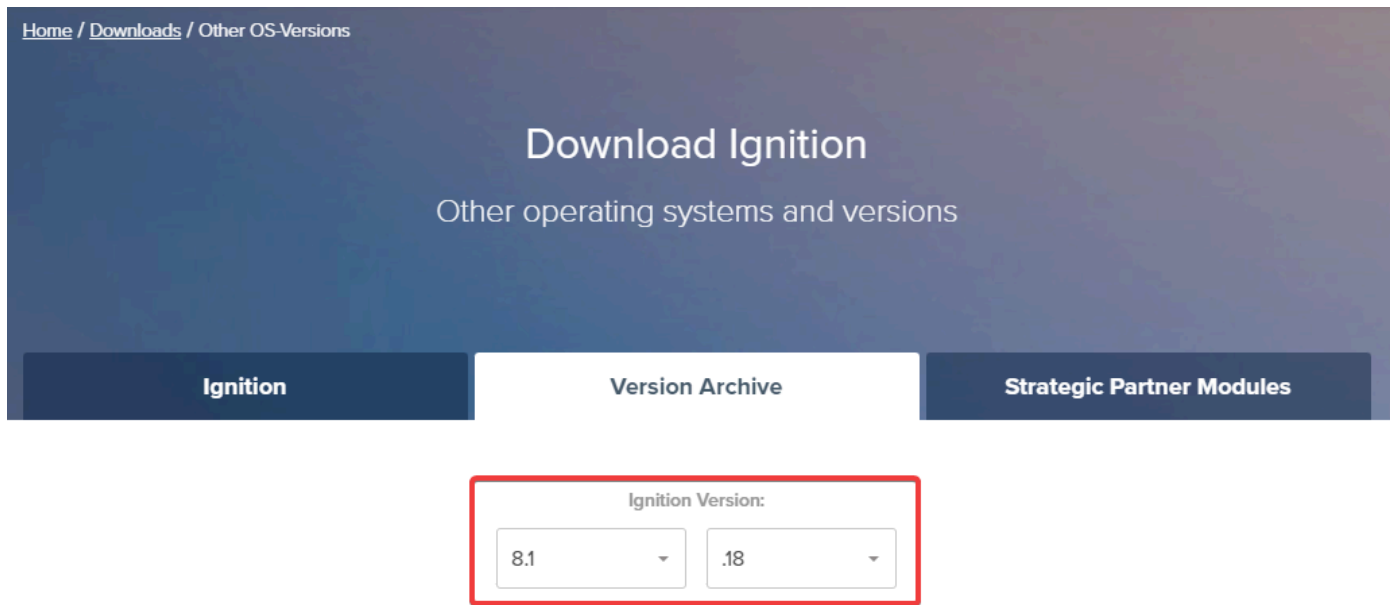
Downloading a Module

Ignition comes with some default modules when installing the software. There may be a few modules you require that are not included when performing the initial installation, however. To find the module(s) you require, follow the instructions below.

1. Go to the [downloads page](#) on the Inductive Automation website.



2. Click on "Other Versions", located under the Ignition tablet and mobile device graphic. By default, this will take you to different installers and modules for the **latest** version of Ignition.



3. Select which version of Ignition you are currently running.
4. Scroll down the page until you see which module you are looking for. Once you click on the target module, it will start downloading the .modl file.

Install or Update a Module

i NOTE

Installing a module will require connected Vision Clients and Designers to restart. Perspective Sessions will not require a restart.

Production systems using either Clients or Designers should wait for downtime before installing a module.

1. On the Gateway Webpage, select **Config > Modules** to open the **Module Configuration** page.
2. Scroll to the bottom on the list, find the blue arrow, and click the **Install or Upgrade a Module** link.



To **install** a module, choose its `*.modl` file and press "Install".

To **upgrade** a module, install the new version on top of the existing version.

Modules can be **downloaded** from [our website](#).

Choose File No file chosen

Install

3. Click **Choose File**, select a `.modl` file that you have previously downloaded.

! DON'T HAVE AN IGNITION MODULE ALREADY DOWNLOADED?

Go to the Inductive Automation [downloads page](#). Search for the module you want and save it to your Downloads folder on your computer.

Third Party Modules All third party Ignition modules require the Ignition platform to be installed. To install third party modules:

- Install Ignition: See [Installing and Upgrading Ignition](#).
- Once Ignition is installed, download the module and install it in the Ignition Gateway.

SepaSoft, Inc. MES Modules for Ignition		
OEEDT Installer Module	OEEDT-Installer-module.modl (8MB)	Version: 1.9.0.1610111600
SPC-Installer-module	SPC-Installer-module.modl (10MB)	Version: 1.9.0.1610111606
Instrument Interface-module	Instrument-Interface-module.modl (1MB)	Version: 1.9.0.1610111601
Recipe-Installer	Recipe-Installer-module.modl (8MB)	Version: 1.9.0.1610111609
Productionsimulator-Installer	Production-Simulator-module.modl (58KB)	Version: 1.9.0.1610111559
Trace-Installer	Trace-Installer-module.modl (7MB)	Version: 1.9.0.1610111555
Web Service-module	Web-Service-module.modl (2MB)	Version: 1.9.0.1610111611
Barcode Scanner-module	Barcode-Scanner-module.modl (61KB)	Version: 1.9.0.1610111610

Go back to the **Install or Upgrade Module** screen and browse your Downloads folder for your module, select it, and click **Open**. Ignition will copy the path to the module to the Browse field and all that's left for you to do is click **Install**.

4. Click **Install**. When the page reloads you can now see the module you installed in the list of modules.

Manual Module Installation

Alternatively, you can add module files directly to your Gateway File System by following the steps below:

1. Navigate to the `%IgnitionInstallationDirectory%/user-lib/modules` folder.
2. Add your .modl file to your modules folder.
3. Restart your Gateway service.

Your new module will now be ready to use.

Uninstall a Module

NOTE

Uninstalling a module will require connected Vision Clients and Designers to restart. Perspective Sessions will not require a restart.

Production systems using either Clients or Designers should wait for downtime before uninstalling a module.

1. On the Gateway Webpage, select **Config > Modules** to open the **Module Configuration** page.
2. Scroll to the module you want to uninstall.
3. Select **Uninstall** on the right of module name. A confirmation message appears.

Really uninstall module?

Are you *sure* that you want to uninstall module **Siemens Drivers**?
The file will be permanently deleted from the local file system.

Confirm

Cancel

- Click **Confirm**. The module is no longer installed and is removed from the list.

Restart a Module

Because of the isolated nature of modules, the other modules are not affected by the restart (unless they depend on that particular module).

- On the Gateway Webpage, select **Config > Modules** to open the **Module Configuration** page.
- Scroll to the the module you want to restart.
- To the right of module name, click the **restart** button.

Tag Historian	3.0.3 (b2019080717)	Turns any database into a powerful historian that can store and drive data in Ignition.	Trial	Running	More ▾ restart
UDP and TCP Drivers	5.0.3 (b2019080717)	Drivers for receiving and parsing UDP or TCP packets.	Trial	Running	More ▾ restart
Vision	10.0.3 (b2019080717)	A module that provides web-launched HMI/SCADA clients.	Trial	Running	More ▾ restart

4. Click **Confirm** at the confirmation message.

Really restart module?

Are you *sure* that you want to restart module **Vision**?

Confirm

Cancel

Ignition will give you a confirmation message when the module has restarted.

✓ Vision restarted.

Module Status

The installed module list on the **Module Configuration** page also provides some basic information about the **State** of the module. The **Version**, **License**, and **State** columns are all displayed in the list. Module licensing is performed centrally in **System > Licensing**, so the values here are only for information purposes.

Home

Status

Config

SYSTEM

Overview

Backup/Restore

Licensing

Modules

Projects

Redundancy

Gateway Settings

NETWORKING

Web Server

Gateway Network

Email Settings

SECURITY

Auditing

Users, Roles

Service Security

Identity Providers

Security Levels

Security Zones

Search

Config > System > **Module Configuration**

Trial Mode 1:55:06 We're glad you're test driving our software. Have fun. [Activate Ignition](#)

Inductive Automation

☒ View Certificate

Name	Version	Description	License	State	
Alarm Notification	5.0.3 (b2019080717)	Provides alarm notifications via email	Trial	Running	More restart
Allen-Bradley Driver	5.0.3 (b2019080717)	Allen-Bradley driver suite for the OPC UA module.	Trial	Running	More restart
DNP3 Driver	3.0.3 (b2019080717)	A driver supporting DNP3 (Distributed Network Protocol) device.	Trial	Running	More restart
Enterprise Administration	3.0.3 (b2019080717)	A remote Gateway administration system, allowing you to manage Gateways and automate tasks from a single controller.	Trial	Running	More restart

Module Shows as Faulted After Installation

In some cases, a module may appear to install successfully, but its functionality does not become available. A common cause of this behavior is a version mismatch between the installed module and the Ignition platform. For a module to load correctly, the middle digit of the module version must match the middle digit of the Ignition platform version. If a version mismatch is detected, the module will display a State of **Faulted: Exception while starting up module** on the Module Configuration page.

Voice Notification	6.1.52-SNAPSHOT (b2025120509)	Provides alarm notifications via phone calls over VOIP.	Activated	Running	uninstall	restart
Web Browser	5.1.52-SNAPSHOT (b2025120509)	Adds a web browser component to the Vision module.	Activated	Loaded	uninstall	restart
WebDev	6.3.2 (b2025120210)	A module enabling users to create and serve basic web resources and respond to web requests through scripting.	Activated	Faulted Exception while starting up module "com.inductiveautomation.webdev".	uninstall	restart

To verify compatibility, navigate to **Status > Overview** and note the Ignition version currently running on your Gateway.

Gateway | Ignition-

0% cpu

280 mb

Version: **8.1.51 (b2025121607)**

License: **licensed**

Uptime: **3 hours**

Because the WebDev module shown above has 3 as the middle digit and the Gateway has 1, there is a version mismatch and the module will remain in a faulted state. To resolve this, download the correct version of the module from the Inductive Automation [Downloads](#) page. Use the Ignition Version dropdown or Version Archive tab to select the Ignition version that matches your Gateway. From the list of available modules, locate the compatible version and download it.

Download Ignition

Other operating systems and versions

Ignition

Version Archive

Strategic Partner Modules

Ignition Version:

8.1.51 - LTS

STABLE

Ignition Modules

Core Modules	Version	Checksum
WebDev Module (115.1 KB)	5.1.51.2025121607	sha-256

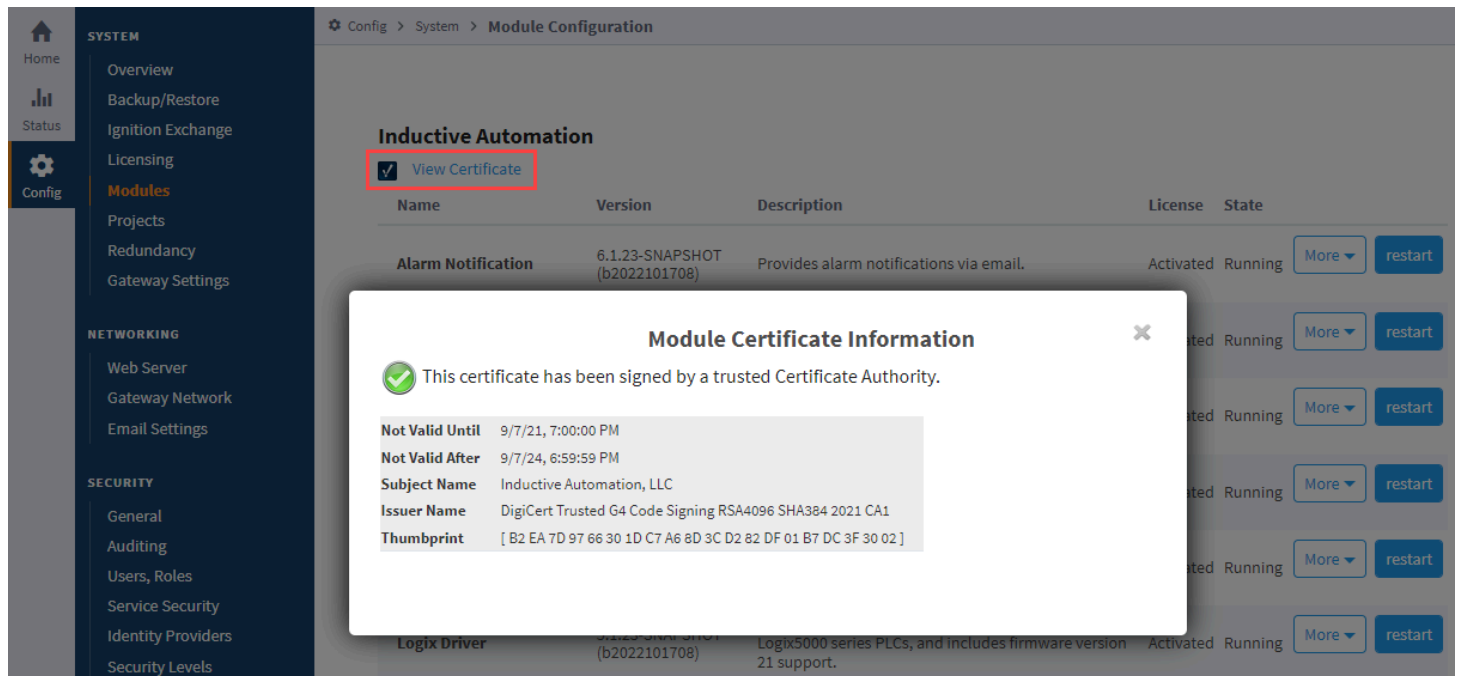
After installing the compatible version, the module will show a State of **Running**, and will become available for use.

Voice Notification	6.1.52-SNAPSHOT (b2025120509)	Provides alarm notifications via phone calls over VOIP.	Activated	Running	uninstall	restart
Web Browser	5.1.52-SNAPSHOT (b2025120509)	Adds a web browser component to the Vision module.	Activated	Loaded	uninstall	restart
WebDev	5.1.51 (b2025121607)	Allows you to create and serve basic web resources and respond to web requests through scripting.	Activated	Running	uninstall	restart

Verify Trusted Modules

Verify the authenticity of Ignition modules on the **Config > System > Module Configuration** page. Modules on this page are shown grouped by their certificate. Click **View Certificate** to see details about each certificate.

A warning message will appear if the module certificate is expired, however this will not have any impact on security or module behavior.



Third Party Modules

Third Party modules are not produced by Inductive Automation. Ensure that you know who produced the code, and perform due diligence as you would with any other software vendor in accordance with organizational policy.

Strategic Partners, such as Cirrus Link, and Premier Technology Providers, such as 4IR and Sepasoft, are trusted parties by Inductive Automation. However, their modules or services are created by separate groups and may need to be vetted separately from the Ignition platform.

The **Module Showcase** hosts Ignition modules written by the community. Authors are required to request certificates from Inductive Automation (IA). IA will remove modules with known problems or risk, but hosting does not require a high level of vetting. Your account representative may be able to provide more information on well-known companies.

New in 8.1.33 The bundled version of Java in Ignition has been upgraded from Java 11 to Java 17.0.8, which may impact third party module compatibility. Refer to third party module documentation for further communication about any end-user modifications that may be required.

Ignition 8 Upgrade Guide

This section contains guides for users that are considering upgrading to newer versions of Ignition.

Should I Upgrade?

It may not be advisable for all users to immediately upgrade production systems to 8. It is highly recommended that all users who wish to upgrade should first install Ignition 8 on a separate server and validate all of the functionality required by their system before deploying it into production. Please read this guide in its entirety to understand the changes introduced in Ignition 8 and evaluate if they will impact your installation(s).

New in 8.1.33 The bundled version of Java in Ignition has been upgraded from Java 11 to Java 17.0.8. Upgrading is recommended for Ignition versions running Vision Clients and Designers 8.1.2 or lower as they will fail to retarget to new clients running Java 17.

Expected Downtime

If you are upgrading Ignition 8, there are some changes that may require a downtime window, even when using Ignition's Redundancy. These changes are covered on the the pages listed below.

- [7.9 to 8.1 Upgrade Guide](#)
- [8.0 to 8.1 Upgrade Guide](#)

7.9 to 8.1 Upgrade Guide

Ignition 8.1 is a major update across virtually all subsystems and modules. Inductive Automation strives to maintain its commitment to backwards compatibility and a straight-forward upgrade process. However, given the vast scope of changes in 8.1, there are inevitably special considerations that need to be evaluated and actions taken in order to successfully upgrade an existing system. This document seeks to identify those issues and provide guidance for users who are migrating from an Ignition 7.9 system. To discover the new features of Ignition 8.1, please see the [What's New](#) section.

In some cases, it is not advisable or possible to upgrade from Ignition 7.9 to 8.1 at this time. Please read this guide carefully before upgrading a production Gateway.

NOTE

The information on this page is largely directed to cases where individuals are upgrading from Ignition 7.9 to 8.1. While it is possible to upgrade from earlier major versions, such as 7.8 or 7.7, some users find that incrementally upgrading older systems to the latest version of 7.9 *first* and then upgrading to the latest version of 8.1 typically results in the best experience.

Upgrade Process

When upgrading from Ignition 7.9 to Ignition 8.1, there are two general approaches.

Using the Installer to Upgrade (Preferred Approach)

Using the Installer to upgrade is the easiest approach. Simply run an Ignition 8 installer on your existing server (similar to how upgrades normally work). As always, we highly advise taking a Gateway backup before upgrading.

Importing Projects into a Fresh Install

We have found that some users prefer to completely uninstall their Ignition 7.9 Gateways, install a fresh copy of Ignition 8.1, and then manually import projects and Tags from the old Ignition 7.9 Gateway, one-by-one. We generally **discourage** this practice, as it results in unintended consequences. We recommend you take the "Using the Installer to Upgrade" approach instead. However, if you must import Ignition 7.9 resources into an Ignition 8.1 Gateway, then we recommend you use Gateway Backups instead (when possible).

The reason for this, is that a Gateway Backup triggers an upgrade check that looks over the Gateway Backup and makes modifications to the resources so they run as expected on an Ignition 8.1 system. The same check is triggered when running the installer. Project and Tag imports do **not** trigger this check. As a result, you may need to make manual modifications to the imported resources.

For example, the project system in Ignition 8.1 is drastically different, so running the installer directly on an Ignition 7.9 Gateway or importing an Ignition 7.9 Gateway Backup into an Ignition 8.1 Gateway will trigger all of the updates listed under the **Project Inheritance & “Global” Upgrade Logic** heading below. Individually importing projects one-by-one will not trigger the upgrade logic, so any legacy "shared" scripts may not work in Ignition 8 without user intervention.

The same could be said for Tag imports. Ignition's built-in OPC UA server connection on Ignition 7.9 used the name "Ignition OPC-UA Server", but Ignition 8.1 changed the name to "Ignition OPC UA Server", removing the hyphen "-" character. As a result, your Ignition 7.9 Tags are likely using the old name, where as a freshly installed Gateway is using the new name. Thus, OPC Tags imported from an Ignition 7.9 file will likely break upon import as the OPC Server name won't match, so you'll need to either A) rename the OPC UA server connection or B) find-and-replace the OPC UA server name on all of the Tags.

Changes That Require User Action

These changes will require manual action on the part of the system administrator/project author. In other words, these are features or situations that have a direct corresponding solution, but for various reasons cannot be automatically upgraded.

Look and Feel changes

The general look and feel of the Ignition Designer and Vision Client has been updated. This may result in subtle changes to the appearance of Vision Clients depending on the components used by a given project. It is not possible to revert to the old “look and feel” as it’s not compatible with new version of Java.

This means screens that have been developed in version 7 may look different after upgrade. Notably, the default font on many Vision components is larger. To preserve your pre-8.0 look, you will want to enable the **Use Condensed Font** Gateway setting (introduced with version 8.1.4).

Manual configurations to Vision resources, such as manually selecting a font or background color for a component, will be preserved upon upgrade. However, visual properties left with default values may appear differently after upgrade. You may also notice component properties like `antialias` and `background3D` no longer exist.

NOTE

It is highly advised to upgrade version 7 projects to version 8.1 on a test server and verify the look of the project, before upgrading the production servers.

Redundancy Connection Configuration

Redundancy communication is now accomplished through a Gateway Network connection between the master Gateway and the backup. This mechanism provides greater security and performance than the previous communication channel, but will require the system administrator to re-establish the connection.

The settings for the communication channel are still configured in the Gateway under Configure>Redundancy, and are still established from the Backup to the Master, but must be modified before the backup will successfully connect to the master after upgrade.

Replacement for the `system.tag.browseConfiguration` Function

The Tags system in Ignition changed dramatically in Ignition 8, which makes the Ignition 7.9 function `system.tag.browseConfiguration` obsolete. The function has been removed from the code base, so scripts using the old `browseConfiguration` function will break upon upgrade. The functionality has been replaced by `system.tag.getConfigurations`.

OPC UA Certificate Management

Prior to Ignition 8, Ignition's built-in OPC UA client implicitly trusted the certificate of any server it connected to, and Ignition's built-in OPC UA server implicitly trusted the certificate of any client connecting to it. This is no longer true. New certificate management pages for the client and server have been added to the configuration section of the Gateway under "OPC UA > Security". From this UI, trusted certificates can be imported and quarantined certificates can be marked as trusted. Ensuring the remote certificate is trusted, is required for all secured inbound and outbound connections.

On upgrade, all secured inbound and outbound connections other than the default "loopback" connection will be faulted until the remote certificate is explicitly marked as trusted.

Query Tags

New in 8.1.3

Query Tags in Ignition 7.9 have a default behavior that allow Array and Dataset type Tags to ignore AutoDetect logic and execute queries as SELECT statements. Starting in 8.1.3, if a Query Tag does not start with SELECT, Ignition will execute the query as an UPDATE query. Manually selecting either SELECT or UPDATE will circumvent any issues that may arise from this change.

Quality Codes

8.1 quality codes are different from the quality codes in 7.9. Existing values are adapted automatically so tag history quality results and bindings can still be trusted in your upgraded versions. However, it is important to check areas where manual entry may prevent adapted values from populating correctly such as scripts for live checks of tag quality.

Discontinued Features

These are areas that have been removed or discontinued, as new methodologies have been adopted to replace the functionality.

Vision Mobile Module Discontinued

The Vision Mobile Module is no longer supported in Ignition 8. The new Ignition Perspective Module provides a robust, modern solution for mobile visualization. Users should migrate their mobile visualization needs to be based on Perspective applications going forward.

A few important points:

- The Mobile Module will continue to be supported on Ignition 7.9 for the remainder of its respective Long Term Support (LTS) terms.
- All customers who own the Mobile Module and have current TotalCare Upgrade Protection contracts are entitled to a license of Perspective Mobile upon upgrade.

External Database “SQLTags” Providers No Longer Supported

The “Database Provider” and “Database Driving Providers” are no longer supported in Ignition 8. These systems were very early ways to bridge outside data into Ignition’s Tag system and have been replaced over the years with much easier and faster methods of data integration.

32 bit Support

Support for 32-bit platforms other than ARM has been discontinued.

Project Rollback

The Project Rollback feature has been discontinued in Ignition 8.

OPC UA Server Stale Threshold

The Stale Threshold setting on Ignition's OPC UA server has been retired. The setting was originally used in earlier versions of Ignition as a means to help some of our drivers determine when values should be marked as stale. Our drivers have since gained their own methods to determine staleness. The setting has little use in Ignition 8, so it was removed.

Staging and Publishing

Ignition 8 features a completely revamped project system. This new project system does not have different “staging” and “published” versions of each project. When you upgrade from Ignition 7.9, any projects that were split into separate staging and publish versions will have their staging versions imported into Ignition 8. This is to prevent any loss: the staging version is always at least as and usually more up-to-date than the published project.

Staging and publishing was not included in Ignition 8’s project subsystem for two reasons:

1. Staging and Publishing was not consistently implemented across various modules, leading to confusion about which types of resources participated in it.
2. Projects are not self-contained; they rely on tags and external connections to devices, databases, etc. For this reason, the staging and publishing feature was only effective in limited circumstances.

You can emulate the old staging and publishing system by simply having a “staging” copy of your project and either move resources between projects or copy & overwrite them in order to “publish” your changes.

OEM Lock

The “OEM Lock” feature that was used to encrypt project resources by authors is not currently supported in Ignition 8. Project authors that used this feature may migrate their projects to 8.0, as the owner license will decrypt Ignition 7.9 resources, but they should be aware that the resources will currently remain unencrypted.

End users who upgrade OEM-Locked systems to 8.0+ will not be able to view the project resources.

OPC UA Server Exposed Tags Auditing

When a Tag made available via the “Exposed Tags” feature of Ignition’s OPC UA server is written to by an OPC UA client, the write is not currently entered into the audit log.

OPC UA Server “ReadOnly” Role

The undocumented “ReadOnly” role no longer has any effect.

Changes to Be Aware Of

Ignition 8 has many additional changes and improvements that system administrators should be aware of. Although none of them present a significant issue, some may directly affect end users (for example, launching clients), and some can be leveraged to improve the security and performance of your system.

Third-Party Modules

Please consult individual module authors concerning upgraded module availability. Modules built for Ignition 7.9 will not work in Ignition 8 without modification.

Tag Historian Licensing

See the [Tag History Licensing](#) changes on the [Upgrading from 8.0 to 8.1] page.

Default Security Certificate

Ignition installations no long come with initial security certificates.

Native Client Launchers Replaced

The Native Client Launcher has been replaced by the [Designer Launcher](#) and [Vision Client Launcher](#), which offer similar functionality. Due to the aforementioned "Default Security Certificate" change, secure connections between the launchers and Gateway will require valid certificates are in place.

Java Web Start Discontinued

Support for Java Web Start has been discontinued by Oracle and the OpenJDK community as of Java 11. This technology has been used in Ignition since its original release to launch the Designer and

Vision clients, though we have also offered alternative launching tools for years.

In anticipation of this change, the designer and client launching tools have been greatly improved in Ignition 8. In addition to a fresh and more functional UI, the launch tools now manage the Java runtime environment used by the client (see next point), and can help you track many projects and Gateways. There are separate launchers for Vision Clients and the Designer, representing the natural distinction between the target users of these products, and the launchers can be downloaded for Windows, Mac, and Linux directly from the Gateway homepage.

Java Web Start is no longer supported, please use the Designer and Client launchers to launch those applications.

Embedded Java

Ignition no longer requires Java to be installed on the Gateway or client machines. Native versions of the Ignition installer and launchers have been made available for 64-bit Windows, Mac, and Linux, as well as ARM, for use in edge devices. These distributions include embedded JREs (Java Runtime Environment) that are provided by Inductive Automation and managed by Ignition.

The native client launchers manage retrieving the current version of the JRE as necessary for the client and designer runtimes. Updates to the embedded JREs are managed by Inductive Automation and are made available through updates to Ignition. The client launchers will automatically update their local versions as necessary, ensuring that Vision Clients and the Designer are always running the latest version available on the Gateway.

Ignition no longer requires Java to be installed on server or client machines. System administrators should monitor Inductive Automation for important system and security updates, and can sign up for important notifications at <http://support.inductiveautomation.com>

Project Inheritance & “Global” Upgrade Logic

The project system in Ignition 8 has been improved and now features a more flexible inheritance model. Each project may have a “parent” project, and will inherit all of the resources of that parent project. That project may in turn have its own parent project, and so in this way complex hierarchies of re-usable resources may be designed. Within each project, inherited resources may be used by other, “local” resources. For example, an inherited Vision template could be embedded in a window, or an inherited script could be executed by a button. Inherited resources may also be overridden, allowing them to be re-defined when needed. Conversely, resources in parent projects may be marked as “not overridable” to ensure that children cannot alter them, when appropriate.

This new inheritance system makes Ignition 7.9’s “global” project concept obsolete. In order to maintain backwards compatibility, the following will happen when an Ignition 7.9 Gateway is upgraded

to Ignition 8:

- The resources from the Ignition 7.9 special “[global]” project will be copied into an Ignition 8 standard, inheritable project called “global”.
- All other projects will have their parent project set to this new “global” project.
- All “shared” scripts are now simply project-level scripts in a top-level script package called “shared”, stored in the new “global” project. This allows all existing scripts to function without edits.
- All “project” scripts are now simply project-level scripts in a top-level script package called “project”.
- All Vision templates stored in the old global area are moved into a folder called “SharedTemplates/” in the new global project. The Vision module will automatically convert a template path like “[shared]MyTemplate” as “SharedTemplates/MyTemplate” so that no further action is needed.
- If any run-always sequential function charts are present in the global area, a new project called “run-always-charts” will automatically be created upon upgrade, and these charts will be moved into this project. This is because resource types that execute automatically like run always SFCs and Transaction Groups do not run in inheritable projects.
- If any alarm pipelines exist, a project called “alarm-pipelines” will be created and all alarm pipelines will be moved into this project. Tags can target pipelines in any project, but in the absence of a specific project, the pipeline is assumed to be in this special upgrade project.
- There is a new Gateway-wide setting called “Gateway Scripting Project”. This setting lets you specify one project which all scripts that are outside the scope of a project will execute against. For example: Tag Change Scripts and Tag expressions using the runScript expression. On upgrade, this will be set to the new “global” project so that Tag scripts can continue to access shared.* scripting functions.
 - In addition to Tag scripts, this can potentially impact other features, such as expression items in a Transaction Group using the runScript function.

Deprecated system.tag Functions

- The system.tag.read and system.tag.readAll functions were deprecated. They have been replaced by **system.tag.readBlocking**.
- The system.tag.write and system.tag.writeAll functions were deprecated. They have been replaced by **system.tag.writeAsync**.
- The system.tag.writeSynchronous and system.tag.writeAllSynchronous functions were deprecated. They have been replaced by **system.tag.writeBlocking**.

Tag System Changes

The Tag system has undergone significant changes in Ignition 8. The majority of these changes should go unnoticed upon upgrade (apart from obvious UI changes), and most systems should immediately benefit from improved performance, faster edits, and expanded functionality. To summarize:

- "Scan Classes" have been renamed to "Tag Groups". Functionally they're identical. Scan Classes on Ignition 7.9 systems will gracefully migrate to Tag Groups upon upgrade.
- "LastChanged" has been renamed to "Timestamp". Like Scan Classes, LastChanged values will migrate to Timestamp upon upgrade.
- The Tag Editor has been gone through a major UI rework, but remains as easy-to-use as ever.
- Tags are fundamentally defined via JSON structure now. A new right-click menu has been added to the Tag Browser, allowing you to edit the raw JSON of a given Tag. Additionally, Tag exports/import files now support a JSON format.

The upgrade process will attempt to convert older tags to the new system. Should this process fail, log files will be generated in the installation directory: `/logs/legacy-tag-conversion` (as of 8.1.11+). You can also leverage [Tag Report Tool](#) to identify broken tags.

UDT Performance

The Tag system has been redesigned to optimize for UDT oriented design. In Ignition 7.9, certain aspects of UDT performance led some system designers to favor standard Tags over UDTs for some applications. Such systems should be re-evaluated in Ignition 8, as use of User Defined Types will lead to more efficient memory usage and lighter weight change processing.

UDT Parameter Usage

The way that Parameter references are applied to Tags has changed. Instead of being replaced in a "pre-compilation" stage of Tag execution, they are now treated as true property references. This means that they can be modified, and those modifications propagate dynamically to referencing properties, causing those to be updated in turn.

An important consequence of these changes is that syntax for parameter references in Expressions has changed in a subtle, but crucial way. In Ignition 7.9, due to the replacement strategy, the following would have been a valid expression:

```
"The value of the parameter is: {ParamRef}"
```


In Ignition 8, this value would no longer be a valid reference. It is counter-intuitive to all other uses of reference in Ignition, and has been replaced with a more familiar syntax:

```
concat("The value of the parameter is: ", {ParamRef})
```

All existing references will be upgraded automatically to the new syntax upon system upgrade. Designers should be aware of this change when creating new Tags.

UDT Parameter Formatting

OPC tags using **+00** in parameter bindings on their OPC Item Paths will return an `Error_Configuration` message as 8.0+ no longer allows **+0#** in parameter bindings when 7.9 allowed an arbitrary amount of zeroes. Changing this to **+0** in the path will fix any broken tags.

NOTE

Due to a change in 8.0.3 that "Improved mathematical operator support for UDT parameters", using operators such as `+` or `-` in your UDT Parameter is not recommended, as this can lead to Ignition executing a mathematical equation instead.

Quotes Taken Literally in String UDT Parameters

In addition, string UDT parameters that contained quotation marks in 7.9 will now be represented literally. In 7.9 the quotation marks were omitted. After upgrading, the quotation marks will be included in the UDT parameter value.

The `instanceName` UDT Parameter

The built-in `instanceName` UDT parameter works differently in nested UDTs. Referencing the parameter in a nested UDT will return the name of the nested UDT. In 7.9 the parameter would always return the name of the root UDT.

The `UDTParentType` Property

The UDT property `UDTParentType` has been renamed in Ignition 8 to `TypeId`.

Script Based Tag Editing

The various scripting functions for editing Tags (`system.tag.editTag`, `system.tag.addTag`, etc.) have been deprecated and replaced by [system.tag.configure](#). The previous functions will continue to

work, but designers should learn the new function, which is far more intuitive and powerful than the previous functions.

Tags are now defined as JSON objects, which consist of properties, arrays, and sub-objects. The `system.tag.configure` function can take either a String document definition, or a JSON object that defines one or more Tags. Overrides for UDTs are created by simple redefinition of properties, and complex structures like Event Scripts and Alarm configurations will be merged with inherited definitions.

OPC UA Default Configuration Changes

New installations have some new OPC UA related defaults:

- The server binds only to localhost (i.e. no remote connections allowed)
- The server uses port 62541 instead of 4096
- The server only allows secured connections (SecurityPolicy Basic256Sha256)
- The default “loopback” connection is called “Ignition OPC UA Server” (there is no longer a “-” between “OPC” and “UA”)

Upgrades are not affected by these changes; they retain their existing configuration.

OPC UA Discovery with Third-Party Clients

Ignition's OPC UA server disallows anonymous access on new installations, which can make the server endpoint difficult to discover by UA clients. To help with this, Ignition's UA server runs a separate unsecured endpoint to allow discovery. The discovery endpoint is accessible by appending `/discovery` to the end of the URL:

```
opc.tcp://1.2.3.4:62541/discovery
```

OPC UA Exposed Tags NodeIds

When using the OPC UA Exposed Tags feature, the NodeId returned by the browse has changed slightly. In prior versions the NodeId would follow a pattern like: `[prov]Path/To/Tag`

As of 8.0+ the pattern now includes a slash after the provider: `[prov]/Path/To/Tag`.

Both patterns still function as expected for the purposes of Reads, Writes, and Subscriptions. However a NodeId returned by a browse will always use the newer pattern.

Changes to `system.alarm.listPipelines`

The `listPipelines` function was changed to search a single project for pipelines. Upgrading from Ignition 7.9 to Ignition 8 will migrate all alarm pipelines into a project named "alarm-pipelines". To maintain backwards comparability, `system.alarm.listPipelines()` will check for a project named "alarm-pipelines", but now accepts a project name as a parameter, allowing the function to check for pipelines in any project.

SQLite Storage

Gateways can now create SQLite databases, or "Internal databases" for many of the storage subsystems (Database Connections, Historian, Alarm Journal, and Auditing), allowing your gateway to store and retrieve data without needing to connect to a remote SQL database, which is useful for development systems and demonstrations.

NOTE

We still recommend external SQL databases are used in production systems, as they generally offer a level of performance and redundancy not available to SQLite databases.

TLSv1.0 and TLSv1.1 No Longer Supported

Ignition version 8.1.6 started embedding Java version 11.0.11 and Ignition version 8.1.33 started embedding Java version 17.0.8. These versions of Java do not offer support for TLS v1.0 and v1.1. This could impact connections the gateway makes to external systems and applications, especially so if those external systems cannot support a more recent version of TLS. The following items could be effected:

- Database connections: This can generally be resolved by simply updating the JDBC driver that the gateway uses. Check your database vendor's JDBC driver recommendations.
- HTTP calls from Ignition (such as those generated by scripting): This is highly unlikely since modern browsers and services already deprecated older versions of TLS. If this is an issue then you'd need to update the service (if the endpoint is an internally hosted service) or check the documentation for the service.

JDBC Drivers May Need Updating

Due to updated Java versions, JDBC drivers for existing installations may need to be updated for compatibility. See the [JDBC Drivers and Translators](#) page for more details.

SFCs

Due to the tag system changes, SFC parameters are no longer able to store entire `QualifiedValue` objects, such as those returned by the `system.tag.readBlocking` function. However fields of a `QualifiedValue`, such as the `value`, can still be stored in parameter.

```
# No longer supported
chart.new_param = system.tag.readBlocking(["[default]myTag"])

# Supported
chart.new_param = system.tag.readBlocking(["[default]myTag"]).value
```

Web Dev Endpoints

In 7.9, Web Dev resource endpoints resembled the following:

Legacy Endpoint

```
host:port/main/system/webdev/projectname
```

In 8.1, Web Dev endpoints no longer contain "main":

8.1 Endpoint

```
host:port/system/webdev/projectname
```

Note that requests using the legacy endpoint will simply be redirected to the 8.1 endpoint, so endpoints created in 7.9 will still function after upgrading.

Tag Paths in Expressions

Expressions that make use of a tag path will need to be updated to include either a tag provider or "[~]".

```
{Path/To/Tag}           // paths that look like this...

{[~]Path/To/Tag}        // ...should be changed to this.
{[MyProvider]Path/To/Tag} // You could always explicitly state the provider too.
```

New Features

Introducing Ignition Perspective

Ignition Perspective is an entirely new visualization system, built from the ground up to allow you to create modern, high performance, and highly functional pure-web applications that can be viewed anywhere. Learn more about Perspective by visiting the [Perspective pages](#) in the User Manual, or the [Inductive University](#).

Using Perspective without Upgrading

The Ignition Perspective module is one of the most exciting new features of Ignition 8, offering an entirely new and innovative way to visualize data and deploy applications to mobile devices. Many users will want to begin leveraging this module right away, and will feel compelled to upgrade for that purpose.

It is important to understand how various Ignition features, in particular the Gateway network and remote services, can be leveraged to allow immediate usage of Ignition Perspective without the potential risk or disruption necessary to upgrade a running production Gateway.

As part of the base platform, the Gateway Network allows you to create connections between Gateways, including between 8 and 7. The Remote Tag Provider allows you to use Tags from one Gateway on another, including both realtime and historical values. Remote Tag Providers created in Ignition 8 targeting Ignition 7.9 Gateways will support reading, writing, real-time subscriptions, and Tag history queries. For more information, see the [Tag Providers](#) page.

Therefore, to develop and deploy Perspective applications with minimum impact on your production system you can:

1. Install Ignition 8 onto a different computer or VM instance.
2. Limit the installation to the Perspective module (though, of course, other modules can be used).
3. Create a Gateway network connection between the Ignition 8 Gateway and the Ignition 7.9 Gateway.
4. Create a Remote Tag Provider on the Ignition 8 system for each provider you'd like to access.

Unless previously changed, remember that the Ignition 7.9 Gateway will employ the default “service security” settings for the remote Tag Gateway network service. This will allow read only data, but if you want to support writes, you'll need to change the policy by going to `Configure>Security/Service Security` in the Gateway.

Introducing Identity Providers

Ignition 8 adds support for connecting to SAML and OpenID Connect Identity Providers. In addition, Ignition can act as an Identity Provider, using a User Source as a backing source of users. On upgrade, a new Ignition Identity Provider will be created that points to a single user source, allowing users in that user source to authenticate against the Identity Provider. You can learn more about this on the [Configuring Identity Providers](#) page.

For more information, see the [Gateway Authentication with Identity Providers](#) section in the 8.0 to 8.1 Upgrade Guide.

Introducing Identity Providers also introduced the option to log in with RFID and badges starting in Ignition 8.0.5. This, in turn, required a new column called "badge" to be added to the *users table. When upgrading Ignition while your User Sources are set to "Automatic" Mode, this column will be created by default. If you are running into an issue with your User Sources, check to see if the "badge" column has been created.

System Commissioning

Upon installing Ignition, the user is now presented with a “system commissioning” web based walkthrough. This process must be completed for new installations, and requires that an initial user is created for the newly commissioned Gateway.

As of Ignition 8.0, there is no longer a pre-defined default “admin” user. System administrators should choose a secure root username and password for optimal system security.

Security Levels

Ignition 8 introduces the concept of [Security Levels](#), which are abstracted attributes that can be given to users, and used as a means to restrict access to different parts of the system. Security Levels can be assigned to users based on User Roles, Security Zones, a combination of both, or neither, as the Expression Language can be used to determine which level any given user falls under.

Many subsystems in Ignition will automatically migrate over to security levels upon upgrade, such as Tag read and write permissions.

Expanded Auditing Scope

Ignition's built-in auditing system was very limited in version 7, recording only a handful of events. Most events that registered in the system had to originate from a project, so changes made at the Gateway level were largely ignored, save for Tag writes.

In Ignition 8, the auditing system's reach has broadened greatly. The system now accounts for configuration changes made at the Gateway level. Check out the [Auditing Actions Reference](#) page for a full listing of actions that are audited.

Project Resource Storage

The new project subsystem in Ignition 8 uses a new file-based storage strategy, instead of the internal-database strategy used in Ignition 7. This has several significant benefits over the previous methodology:

1. All resources can now be tracked with industry standard source control tools, such as Git. Resources can be tracked individually, and changes to disk caused by source control operations (checkout, pull, etc.) will be applied automatically to the running system.
2. Project resources can be transferred between systems with simple file system operations. System administrators can use a wide range of tools to synchronize all types of resources between Gateways.
3. Project backups are simply standard zip files organized in the same way as the file system.

Designer Concurrent Editing and Conflict Resolution

Ignition 8's Designer uses a new lock-free strategy for handling concurrent editing. We believe that this strategy is significantly more robust and will allow for more designers to work together on projects.

The Ignition 7.9 locking strategy is incompatible with the new file system storage strategy. Since changes can occur in the file system at any time, it isn't possible to maintain exclusive edit locks in the Designer.

In Ignition 8, you may open and modify any resource in your project. You will be notified if the system detects that you and another user are both editing the same resource, or if the resource you're editing has already been modified remotely. If you modify the resource anyway, and someone else has modified it first, this is called a conflict. The system automatically detects conflicts when you try to save. If any are detected, you are given the opportunity to resolve these conflicts by choosing whether to use your changes, accept the changes that happened elsewhere, or cancel your save and figure out what to do in another way.

Changes to Gateway Command Utility (GCU)

As of Ignition 8.0, the Gateway Command Utility is deprecated. Functions similar to the ones found in the Gateway Command Utility are now run through the command line. You can find a list of available commands on the [Gateway Command-line Utility - gwcmd](#) page.

8.0 to 8.1 Upgrade Guide

This section details notes and advisories for users planning on upgrading from 8.0 to 8.1.

CAUTION

If upgrading to 8.1.33 or newer, be aware the bundled Java version for Ignition has been upgraded from Java 11 to Java 17. For most users, this upgrade will be seamless. However, users should check Java 17 compatibility with installed JDBC drivers and third party modules in case modifications are needed.

Changes to Be Aware Of

Tag Historian Licensing

In 8.1, the Tag Historian module licensing has been adjusted.

1. Licensing for the full Tag History works identically to before. If you have a normal Tag Historian license, and are using the standard Tag Historian functionality, there are no changes.
2. For customers with a Scale-Out architecture, the Tag Historian could be used on the front-end Gateways unlicensed. This would provide a message of "Partially licensed" on those Gateways, even though the configuration was an acceptable architecture with no need for additional licensing. In 8.1, we added the ability for the Tag Historian to be licensed for read-only operations, to eliminate that message. This is available for free for users upgrading from existing licenses 7.9 and 8.0 licenses that have Upgrade Protection by contacting your sales representative at Inductive Automation.
3. A small set of customers use third-party modules that act as a storage engine for Ignition's Tag Historian. Previously, Inductive Automation did not require a Tag Historian license for a module to act as an engine for our Tag Historian (i.e. to use our API for storage and retrieval). Starting in 8.1, a Tag Historian license is needed in order for these modules to function. If you are using one of these modules in 7.9 or 8.0 and you have Upgrade Protection on your license, Inductive Automation will provide a free addition to your license, so no additional cost is required upon upgrade. If you have Upgrade Protection, Inductive Automation will attempt to auto detect if you're running one of these modules to update your license in our system automatically, so you would only need to click the refresh license button in your Ignition Gateway to pull in the change. Some third party modules cannot be auto detected, so call your sales representative if a third

party historian module does not work on upgrade and you have an existing 7.9 or 8.0 license with Upgrade Protection, and we will add the necessary parameters to your license.

If your system is one of the few that uses third-party historian engine modules, it is highly advised that you review the system after upgrading to 8.1 and ensure the historian system is working as expected. If there are any issues with historian system after upgrade, and clicking refresh on your license hasn't resolved the issue, please contact your sales representative for assistance.

Gateway Scan of Project Directory

As of 8.1, the Gateway scans the project directory every **five** minutes for changes. This is an important change for users that have a Version Control System with their Gateway. Previously in 8.0, the scan time was every **10 seconds**, which proved to be resource intensive.

Users who want to change this scan rate back to the 10 second frequency can do so by placing the following system flag in the ignition.conf file:

```
-Dignition.projects.scanFrequency=10
```

JxBrowser Library Update

We updated our bundled JxBrowser library from version 6 to version 7. For most users, this has no ramifications at all.

For users that have intentionally written scripts against the JxBrowser library, those scripts may have broken as a result of the update. Take a look at the [JxBrowser migration guide](#) for more details.

Gateway Authentication with Identity Providers

In Ignition 8.1, Identity Providers are used to authenticate users on the gateway, whereas version 8.0 and prior used User Sources. To make the upgrade process seamless, your newly upgraded 8.1 gateway will create a new Ignition Identity Provider, and point it to the System User Source (under Gateway Settings prior to upgrade). For this to work, the Ignition Identity Provider needs to be able to view the list of users from the backing User Source.

In cases where Active Directory or Hybrid User Sources were set as the System User Source, you'll want to make sure that the list of users from the underlying user source are available. Otherwise, some users may not be able to log into the gateway after upgrading. You can validate this before upgrading by viewing the [Manage Users](#) page. If one or more users are missing from the resulting list, then you'll want to refine how the user source builds that list. Based on the system's user source, you may need to check some settings:

- For Active Directory User Sources, it's a good idea to verify the **User Search** and **User List filter** settings on the User Source, making sure they're filtering on the criteria you expect.
- For Hybrid User Sources, the **List Users from Active Directory** will determine where the list of users is generated from. If the resulting user list is missing users, you may need to toggle this setting.
- For Database User Sources using the "Manual" Mode, make sure the **List Users Query** is able to return the users you'd expect. If, after upgrading, you're unable to log into the Gateway you can always perform a [gateway password reset](#) to troubleshoot any authentication issues.

Perspective Script Transforms

Arrays in script transforms will now automatically be returned as valid JSON. This change technically modifies the value returned by the transform (i.e., potentially adding quotation marks around string elements), which may impact some existing bindings. If you're making use of Script Transforms that interact with arrays, then you may want to reexamine their configuration after upgrade.

Changes That Require User Action

These changes will require manual action on the part of the system administrator/project author. In other words, these are features or situations that have a direct corresponding solution, but for various reasons cannot be automatically upgraded.

Redundancy Connection Configuration

Redundancy communication is now accomplished through a Gateway Network connection between the master Gateway and the backup. This mechanism provides greater security and performance than the previous communication channel, but will require the system administrator to re-establish the connection.

The settings for the communication channel are still configured in the Gateway under **Configure>Redundancy**, and are still established from the Backup to the Master, but must be modified before the backup will successfully connect to the master after upgrade.

Replacement for the `system.tag.browseConfiguration` Function

The Tags system in Ignition changed dramatically in Ignition 8, which makes the Ignition 7 function `system.tag.browseConfiguration` obsolete. The function has been removed from the code base, so scripts using the old `browseConfiguration` function will break upon upgrade. The functionality has been replaced by [system.tag.getConfigurations](#).

OPC UA Certificate Management

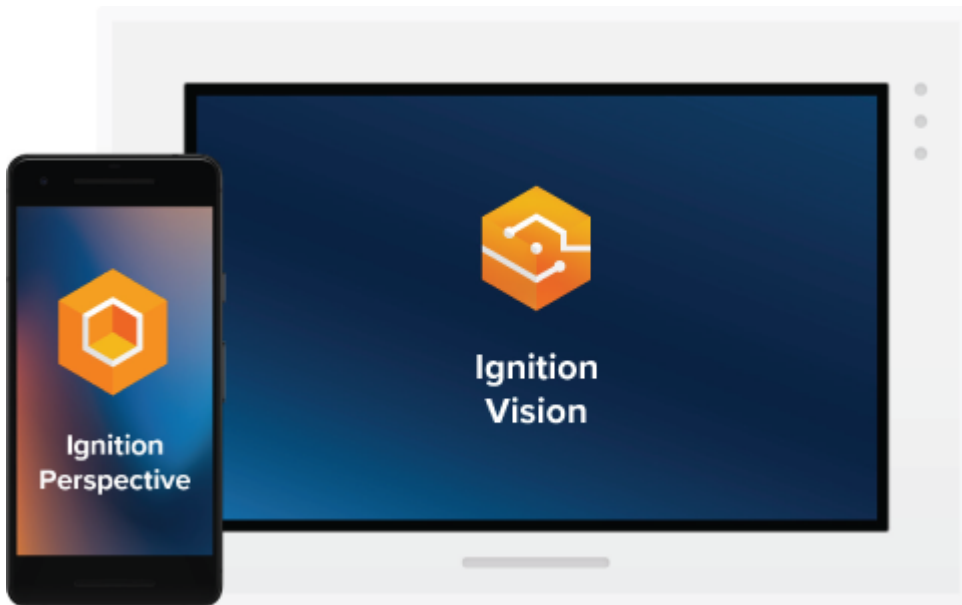
Prior to Ignition 8, Ignition's built-in OPC UA client implicitly trusted the certificate of any server it connected to, and Ignition's built-in OPC UA server implicitly trusted the certificate of any client connecting to it. This is no longer true. New certificate management pages for the client and server have been added to the configuration section of the Gateway under "OPC UA > Security". From this UI, trusted certificates can be imported and quarantined certificates can be marked as trusted. Ensuring the remote certificate is trusted, is required for all secured inbound and outbound connections.

On upgrade, all secured inbound and outbound connections other than the default "loopback" connection will be faulted until the remote certificate is explicitly marked as trusted.

Perspective and Vision - Which Visualization System is Best for Me?

Ignition's Perspective Module and the Vision Module each enable you to rapidly develop industrial applications for your site. Perspective is Ignition's visualization solution that covers both desktop and mobile devices, taking advantage of the latest technologies, and is recommended for almost all new projects. If your application needs to run on a desktop, in an HMI, in a web browser, or on a mobile OS like iOS or Android, then Perspective is a great choice. Desktop PCs, iPCs, big screen displays, phones, tablets, and other devices can easily run Perspective Sessions.

When you start a new project, there are many things to consider, such as who the users will be, how much data you need, and what kind of time and resources you have to work with. Deciding whether to use Perspective or Vision (or both) really comes down to which options best fit your project at the visualization level. Note that Vision and Perspective both support security with Two-Factor Authentication (2FA) or federated identities for the application you're building.

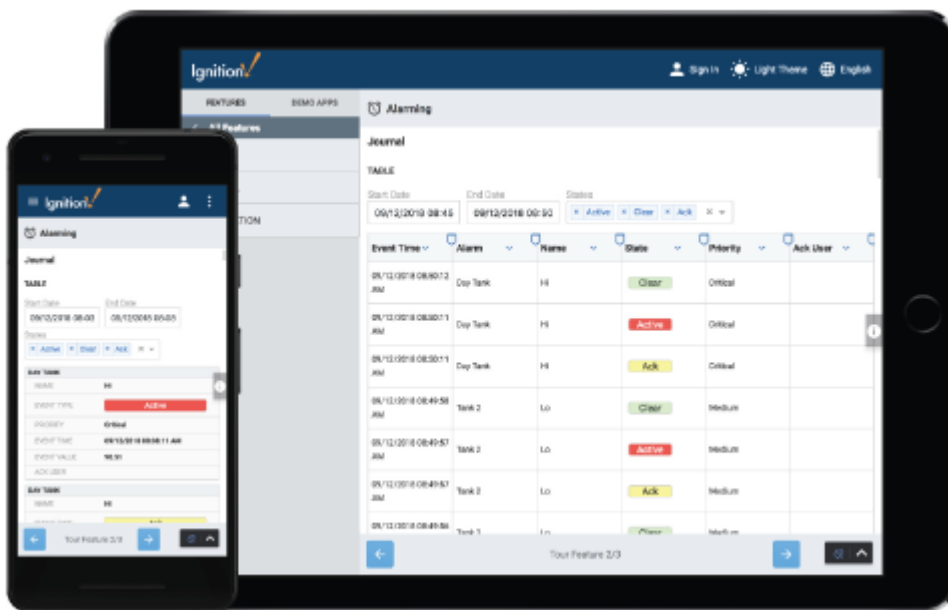


When to Use Perspective

If you need to build mobile-responsive applications, then Perspective is the recommended way to go. If your application needs to run on a mobile OS, namely iOS or Android, then choose Perspective. Phones, tablets, and other mobile devices can easily run Perspective Session. New in Ignition 8.1, **Perspective Workstation** runs in Windowed mode and also has built-in features to run in full screen

Kiosk mode eliminating any distractions from the underlying operating system. Perspective also runs in web browsers on desktop PCs. If you're building an application that needs to run on phones, browsers, and desktop applications that don't have a strong need for OS resource access, Perspective is a great choice.

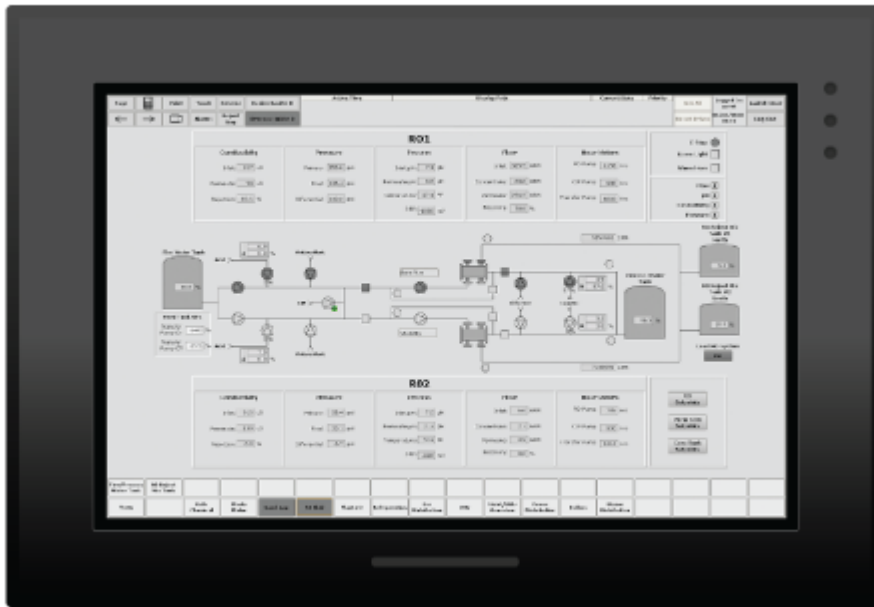
With Perspective, you can automatically adapt to fit any screen size using mobile-optimized container types. It provides the ability to use your device's sensors and intuitive touch commands, as well as message handling, flexible property bindings, and CSS3 styles. For example, with an application built in Perspective, you could augment alarm information by taking a picture of the faulty machine. You could scan a QR code by a machine and have the SCADA system tell you what to do, or take readings or photos in the field and tag them with GPS and other sensor data. There are so many possibilities.



When to Use Vision

Vision is and has been for many years a top-class desktop application. Vision is a great choice for traditional industrial plant-floor and desktop screens, standalone HMIs, and the like. If you need OS resources, file access, serial port access, or custom Java code running directly in the client, and you're looking for visualization through a desktop application, choose Vision.

In Ignition 8, the Vision Module got one of its biggest updates since it was first released in 2010, allowing you to make your HMIs and plant-floor dashboards faster, easier to deploy, and more beautiful than ever.



Should I Upgrade?

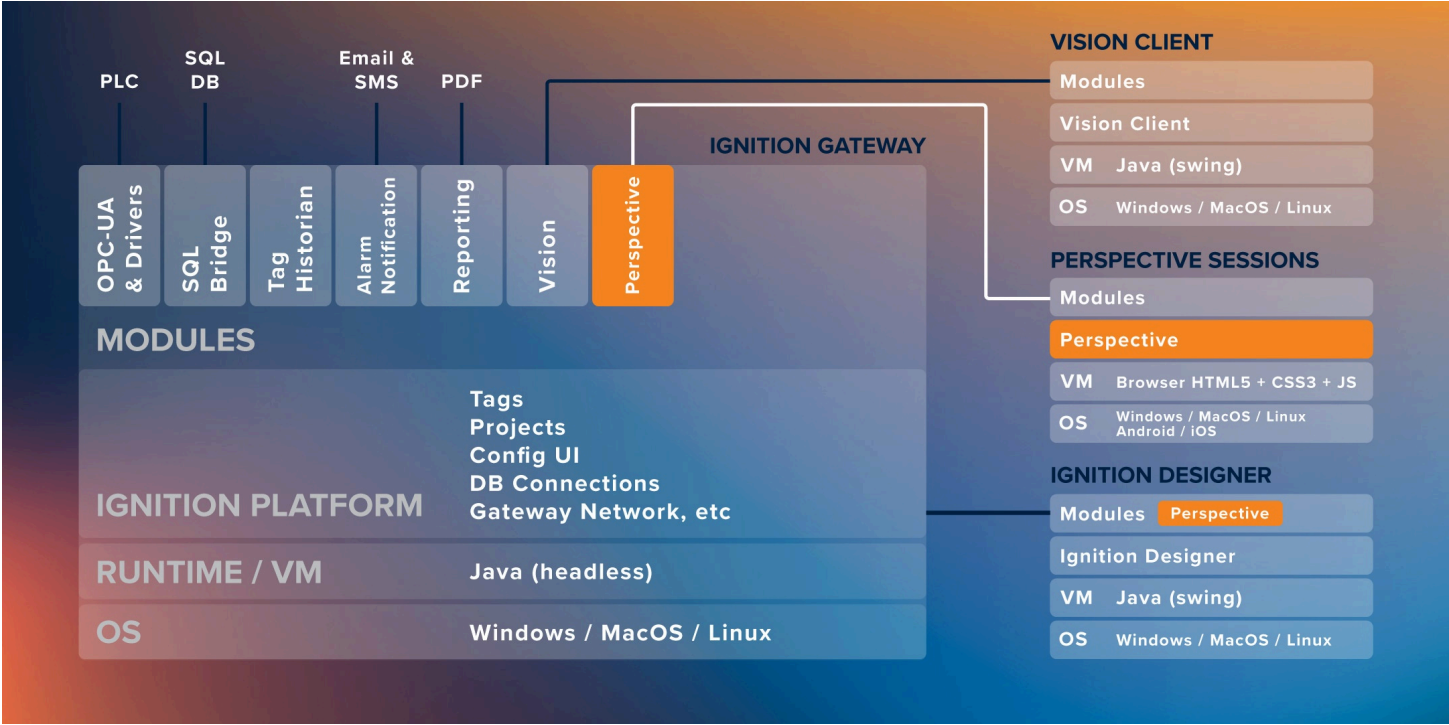
There are many considerations for using Perspective or Vision. Perspective contains familiar elements like the drag-and-drop Designer, property binding system, and scripting engine. Refer to the [7.9 to 8.1 Upgrade Guide](#) for complete information. See also [A Vision-Oriented Guide to Perspective](#).

Behind the Scenes

A “**Client**” in Vision is called a “**Session**” in Perspective, and the two actually have very similar tech stacks. At the bottom of the stack is the OS. In addition to supporting Windows, macOS, and Linux, Perspective also supports Android and iOS. The next part of the stack is the web browser, which is very similar to the runtime/VM layer in the other stacks because it provides an environment to execute code, generate user interfaces, and communicate back to the Gateway. On top of that runs the Perspective session application itself, and then modules can augment the features of Perspective.

In the topology of a typical Ignition installation, there’s the Ignition Gateway, the Ignition Designer, and Vision clients. At the base of the Gateway is the operating system, which can be Windows, Mac, or Linux. Above the OS is the Java runtime/VM layer, which is what Ignition runs on. Above the runtime/VM layer is the Ignition platform, which provides many features and services like Tags, projects, database connections, the Gateway Network, and so on. At the top of the tech stack are modules, which let you do a number of useful things like connect to devices, use databases effectively, send alarm notifications, generate reports, and, in the case of the Vision Module, create applications which run as Vision clients.

As you can see, Perspective is just another module. It installs into the Gateway and provides a design experience in the Designer just like other Ignition modules do.



System Architectures

Overview



INDUCTIVE
UNIVERSITY

Ignition System Architecture

[Watch the video](#)

Ignition is flexible enough to meet the demands of any enterprise infrastructure large, small, or somewhere in-between. You can deploy Ignition at one site, multiple sites, or host it in the Cloud. This section displays several common architecture examples. Many are simply examples, but they are a great starting point. Additionally, these example architectures can be modified or scaled out to accommodate a number of different requirements.

Click on each architecture to learn more about it.

SECURITY ARCHITECTURE

Learn some best practices for how to secure the following architectures by reviewing [Ignition Security Architecture](#).

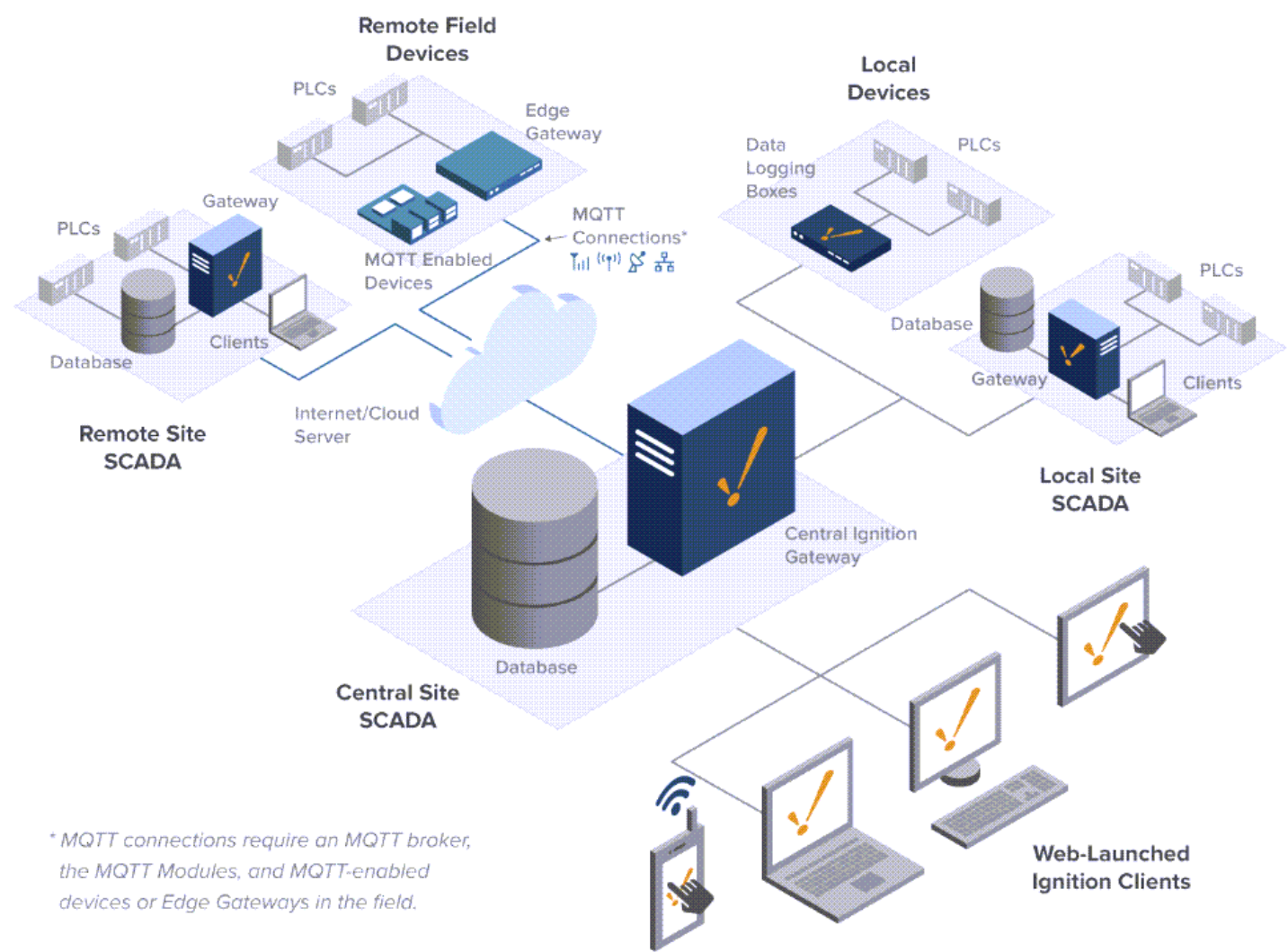
Basic Architecture



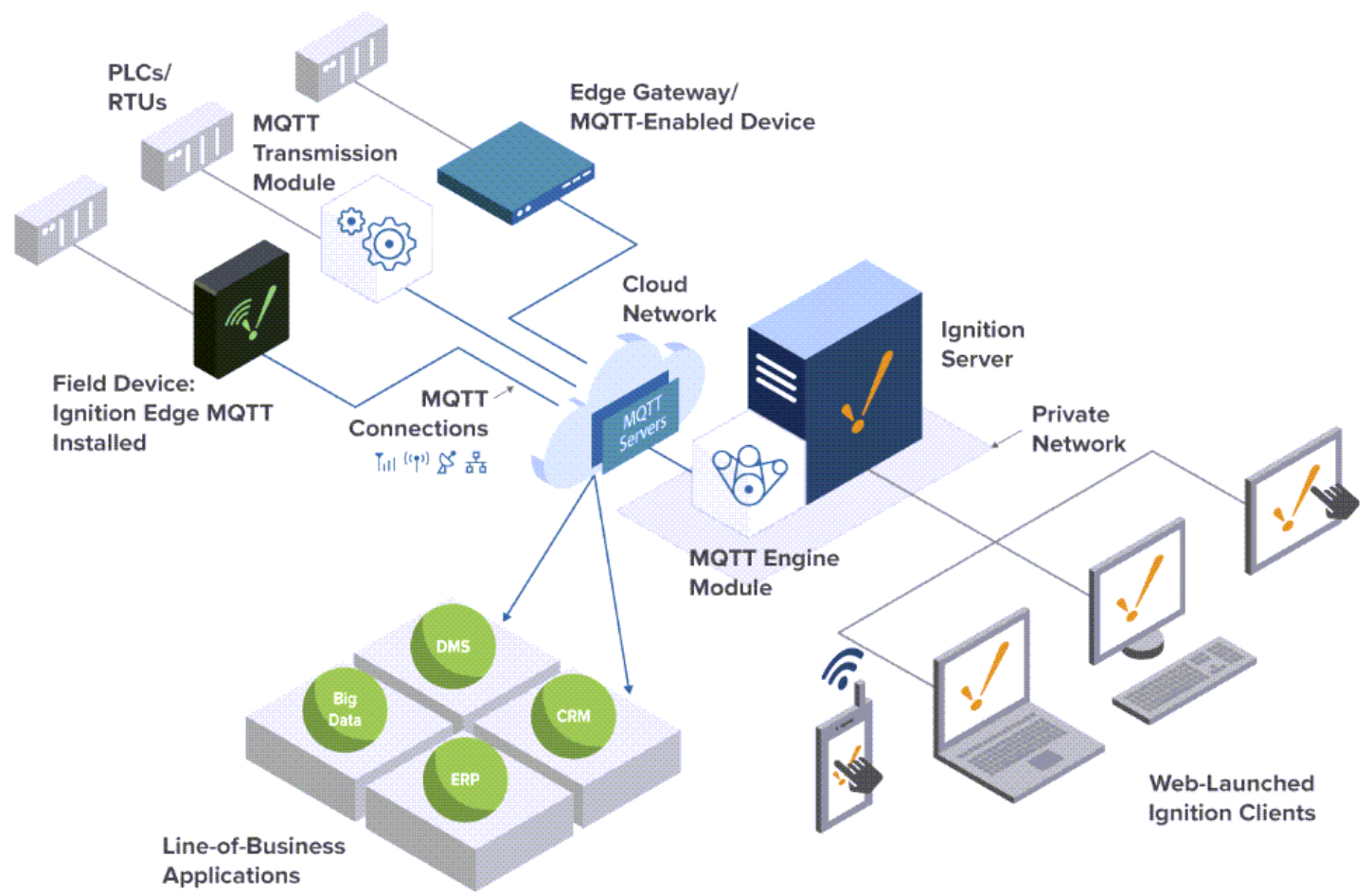
Scale Out Architecture



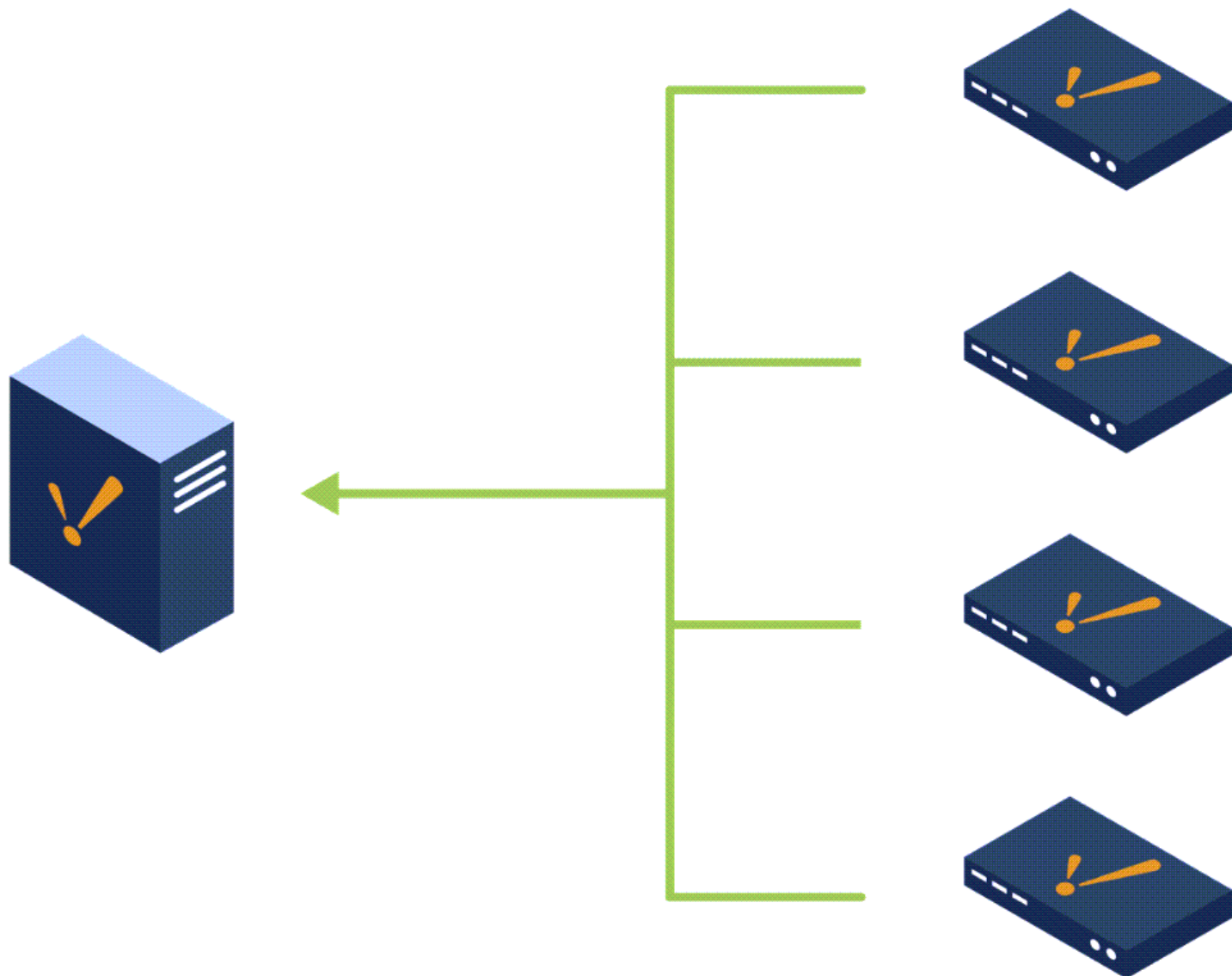
Hub and Spoke Architecture



IIoT Architecture



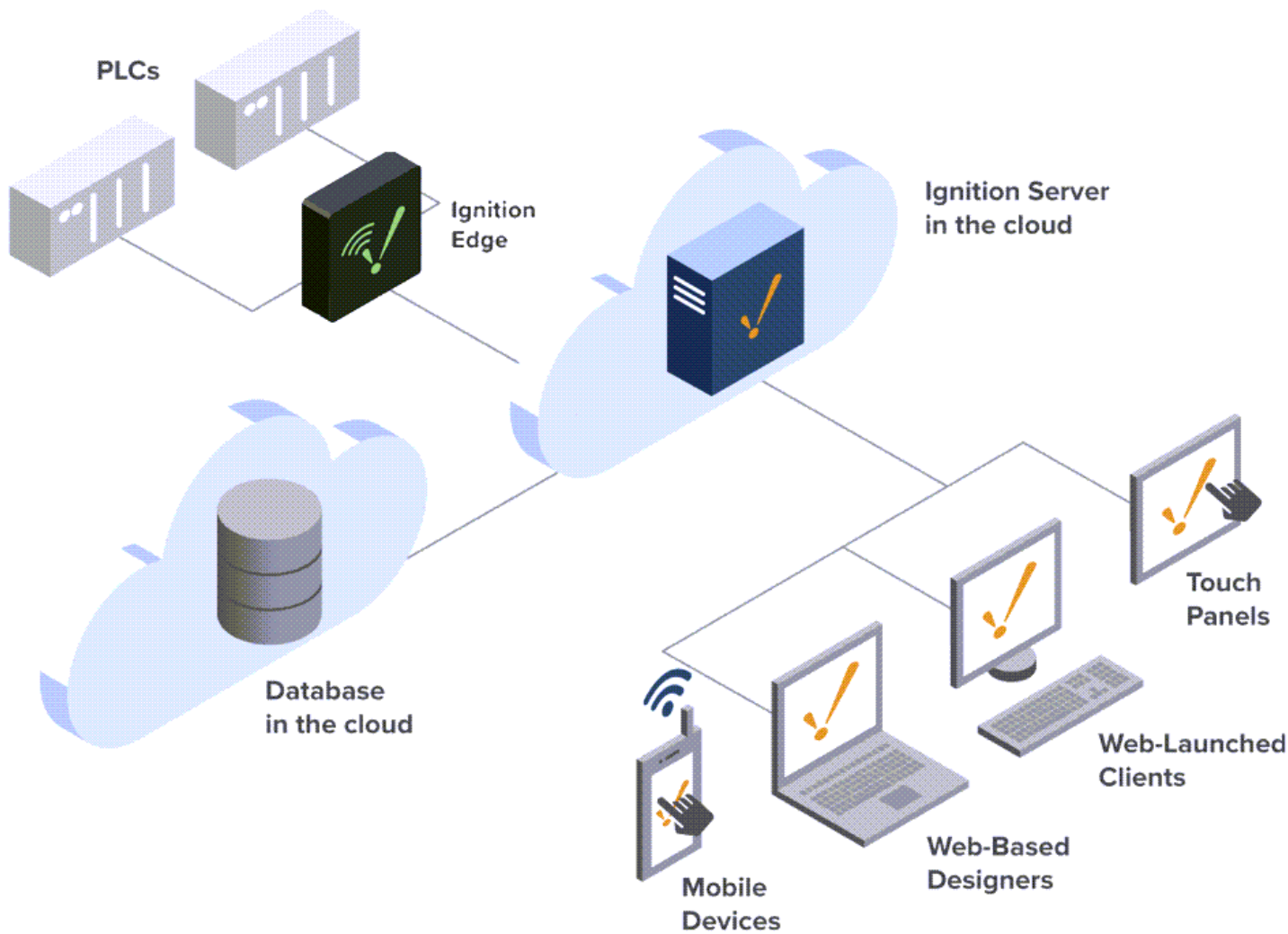
Enterprise Architecture



Redundancy Architecture



Cloud Based Architecture



AWS Outposts Architecture

Basic Architecture

Single Server Install

Ignition's most typical architecture is a basic single installation. This is very simple to set up and it provides the powerful functionality of the Ignition Gateway and it can serve as a starting point for more complicated architectures.

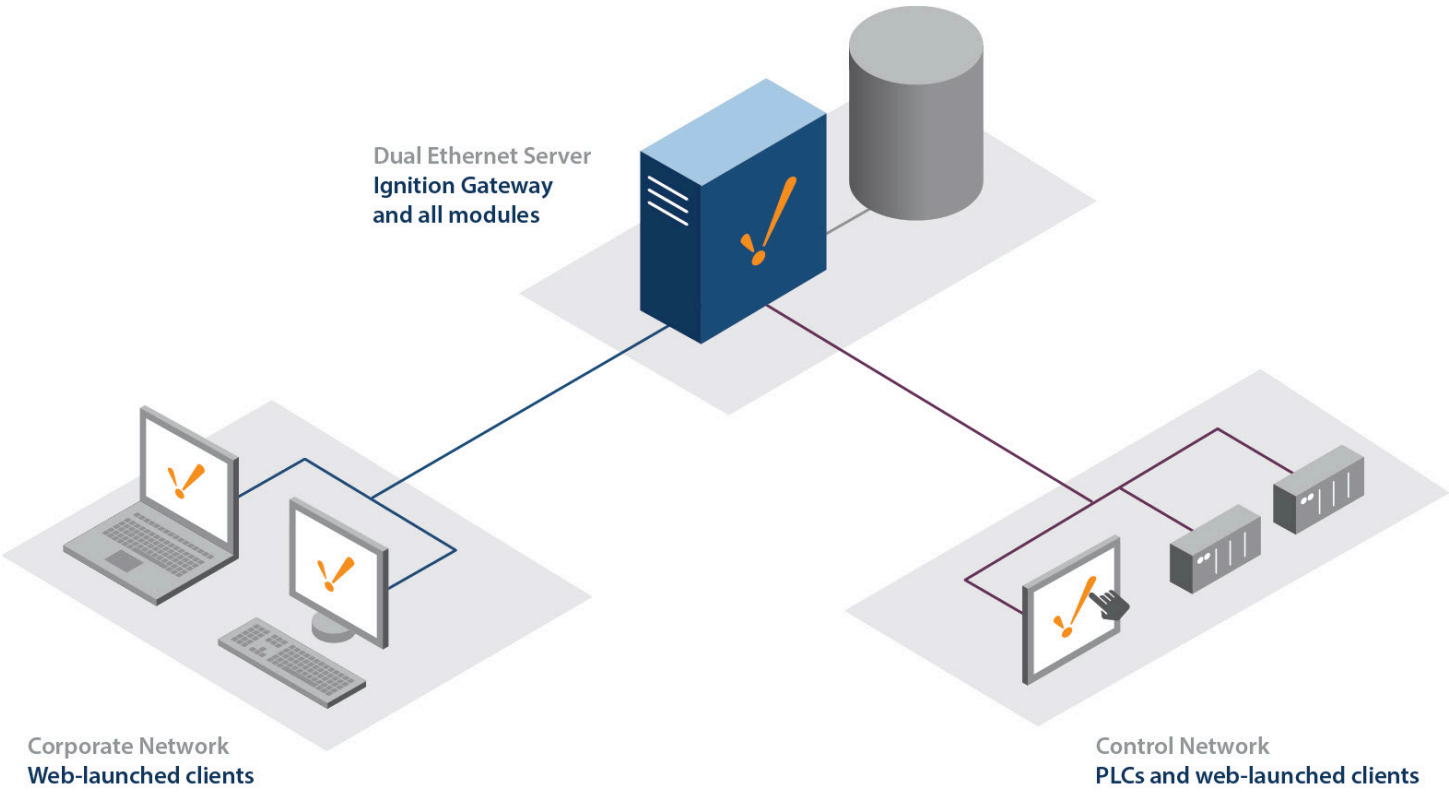
The Basic Architecture consists of a single Gateway that can connect to multiple PLCs, databases, and other devices, all with a single licensed install. With the Ignition licensing system, it's easy to add new devices, databases, and clients. Simply connect them to the Ignition Gateway, no licensing changes required. The Ignition Gateway can launch multiple clients on everything from touch panels to workstations and even mobile devices, all from one Ignition installation.



One Server, Multiple Networks

The Ignition Gateway supports dual-NIC servers, and can act as a bridge between multiple networks, or communicate with multiple sites over a corporate WAN. Since clients talk to databases and PLCs

through the Gateway, clients can be launched from both a corporate network and an isolated control network, and provide full access to both. Built-in **security settings** can restrict project access to users on different networks, either by restricting certain things in a project, or denying access to a whole project based on user role and network location.



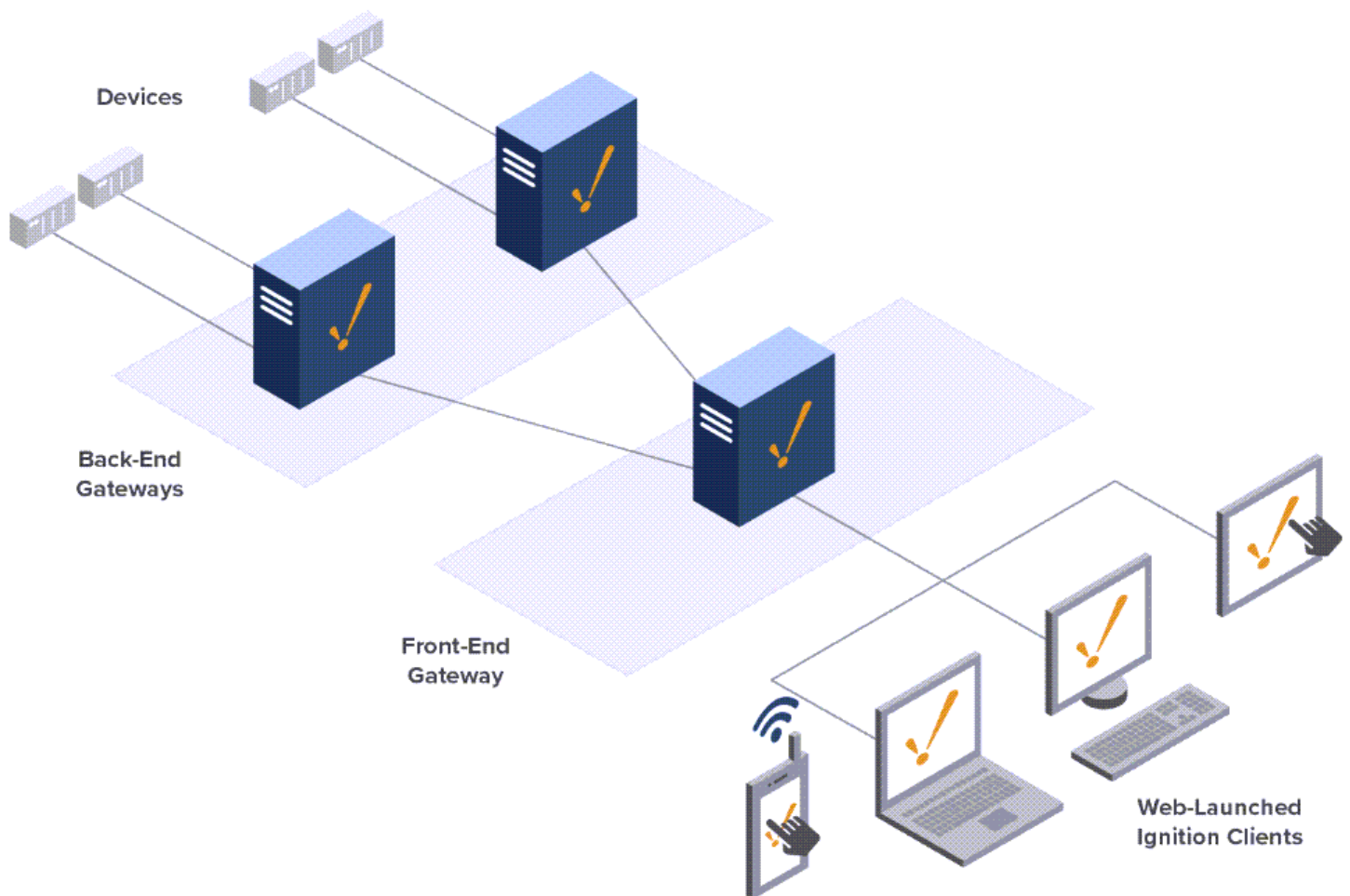
Scale Out Architecture

Scaling Out Ignition for Larger Systems

In larger systems, it is often easier to have multiple Ignition installations to help split the load between the front-end tasks and the back-end tasks. This is perfect for single large systems that aren't split up into different sites. In those cases, the [Hub and Spoke Architecture](#) is usually a better fit.

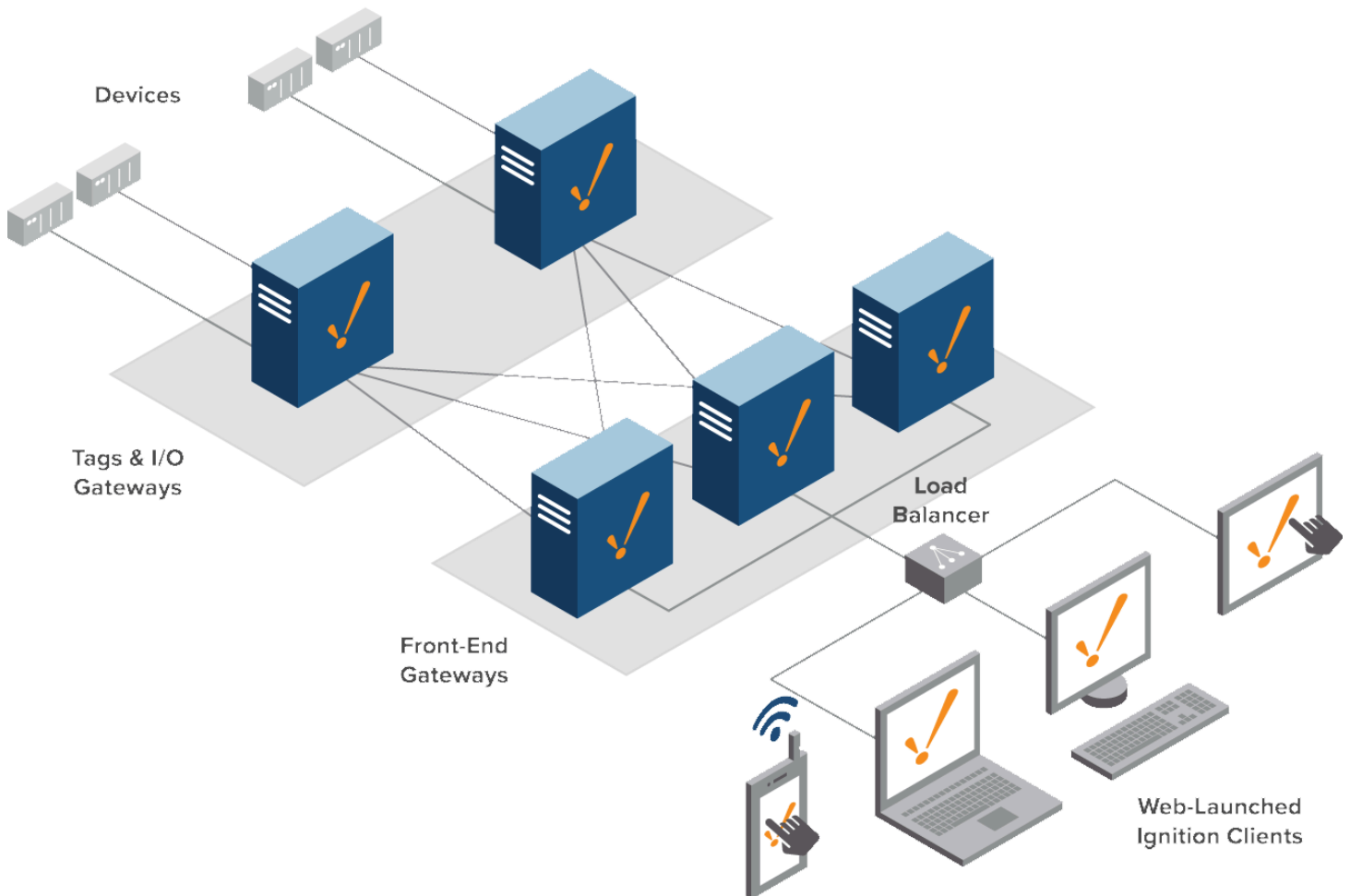
In the Scale Out Architecture, we have at least one Gateway that handles back-end communications. The back-end Gateway deals with all PLC and device communications. The front-end Gateway handles all of the Clients, serving up the data pulled from the back-end Gateway. This is made possible through the [Gateway Network](#), connecting Gateways to each other, and allowing tags to be shared through remote Tag Providers.

For more information on migrating to a scaled out architecture, see the [Scale-Out Architecture Guide](#) page.



Load Balancing

The best thing about the Scale Out Architecture is that it is easy to scale up Ignition as your system grows. In the image below, we added more front-end Gateways to help handle an increase in clients, and a Load Balancer to automatically distribute the clients between them.



Gateway Types

When utilizing Scale Out, an Ignition Gateway is given focus due to its placement. There are two possible types:

- **Back-End Gateway:** This gateway is responsible for communicating with the PLCs, and executing Tags. They share their local Tags with the Front-End Gateways via a Remote Tag Provider, and are generally responsible for recording history. Additionally, alarms can be added to Tags locally, and exposed elsewhere in the system.
- **Front-End Gateway:** This Gateway is responsible for hosting the clients, allowing the Back-End Gateways to focus solely on PLC communication and history.

Database Placement

With this type of architecture, both types of Gateways will need database access: the Back-End Gateways need to be able to store data, while the Front-End Gateways need to query the data out.

Scaling Out the Databases

Multiple on-site databases may also be utilized with this architecture. This typically involves configuring a database cluster.

Why Use the Scale Out Architecture?

Scale Out is utilized in large systems to distribute the workload across multiple servers. This is in contrast to a 'Scale Up' ideology where you have a single powerful server manage the whole system.

Decentralized Servers

In this architecture, each server only deals with a small part of the overall system. Should a server fault, only that part of the system is hindered, allowing other parts in organization to continue uninterrupted. Applying Redundancy to the Back-End servers is ideal to maximize uptime.

Pooled Resource Usage

Since multiple servers are working together, bottlenecks are reduced. A massive amount of work can be performed in this system without slowing down other servers.

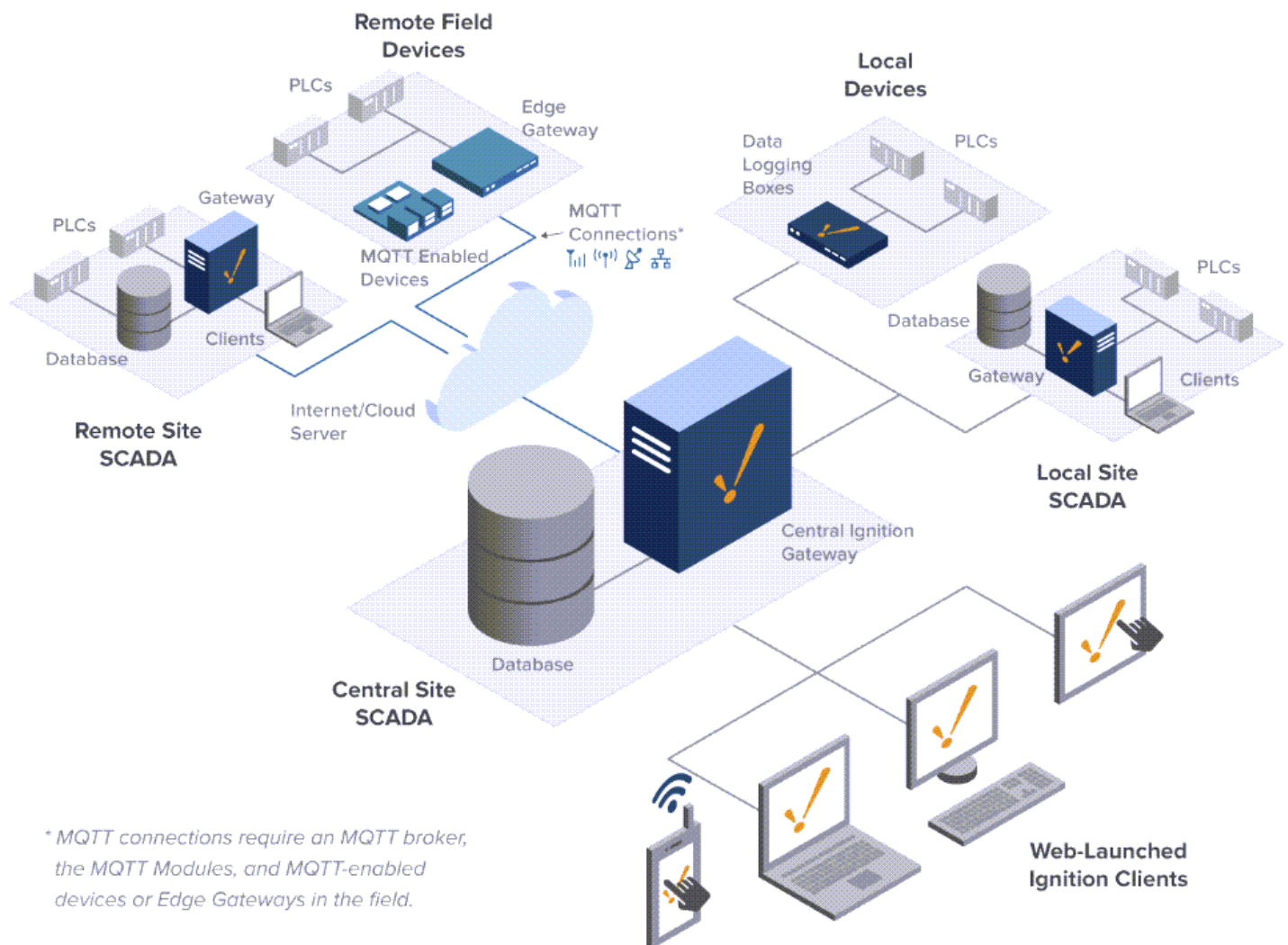
Easy Growth

Improving performance in this architecture is simple: add another Gateway where appropriate. Because the system is spread out on purpose, it's easy to determine which kind of Gateway to add. A Back-End Gateway would help if you're adding new PLCs, and a Front-End Gateway will help when more clients need to be active at a time.

Hub and Spoke Architecture

Centrally Managed Systems

The Hub and Spoke Architecture involves multiple Ignition installations (the spokes) communicating and forwarding data points to a centralized Ignition installation (the Hub). The Hub and Spoke Architecture is unique in that you start with a single Ignition install at a central site. Ignition can then be installed at as many other remote or local sites as needed. These sites can then be customized or configured to suit that specific site's needs.



Reliable Remote Data Logging

Because connections between a database and remote PLCs can be unreliable, we can install either the **SQL Bridge** module or **Tag History** module. The **Store-and-Forward** system then ensures that data is never lost. The system may still be accessed through the OPC-UA server built into Ignition, or database-based Tags may be used to communicate current status. By making use of Ignition's Store-

and-Forward system, data loss is prevented, ensuring that history always reaches its destination in the database.

The Hub and Spoke Architecture is ideal for centralizing historical data from multiple remote sites, and allows access to locally collected data via Ignition's **Gateway Network**.

Local and Remote Logging

The Hub and Spoke Architecture can be modified to store data at each spoke, in addition to the hub by splitting the Tag history. Redundant data is stored at each site as well as the hub database to protect against hard drive failure.

Local Client Fallback

Typically, the Hub and Spoke Architecture does not include the **Vision Module** at the remote sites. You can add the Vision Module at each spoke to take advantage of local client fallback. This way, each site can continue to operate at full efficiency in the event communication with the hub Gateway drops. Users at each spoke will never lost visibility of the system. **Vision Limited** licenses help lower costs on the spokes.

Remote Site Alarming

By adding the **Alarming Notification** module to a remote site, you can notify users when a problem occurs at each spoke. It is best to handle alarms at each remote site rather than centrally, to avoid any problems in case the connection to the central location is lost.

Edge Architectures

The Ignition Edge system is unique in that it can be very flexible and fill in the gaps in any system architecture. Ignition Edge is a smaller version of the standard Ignition install. Edge is used to sit at the edge of a network and do a few specific tasks like client failover or push MQTT data.

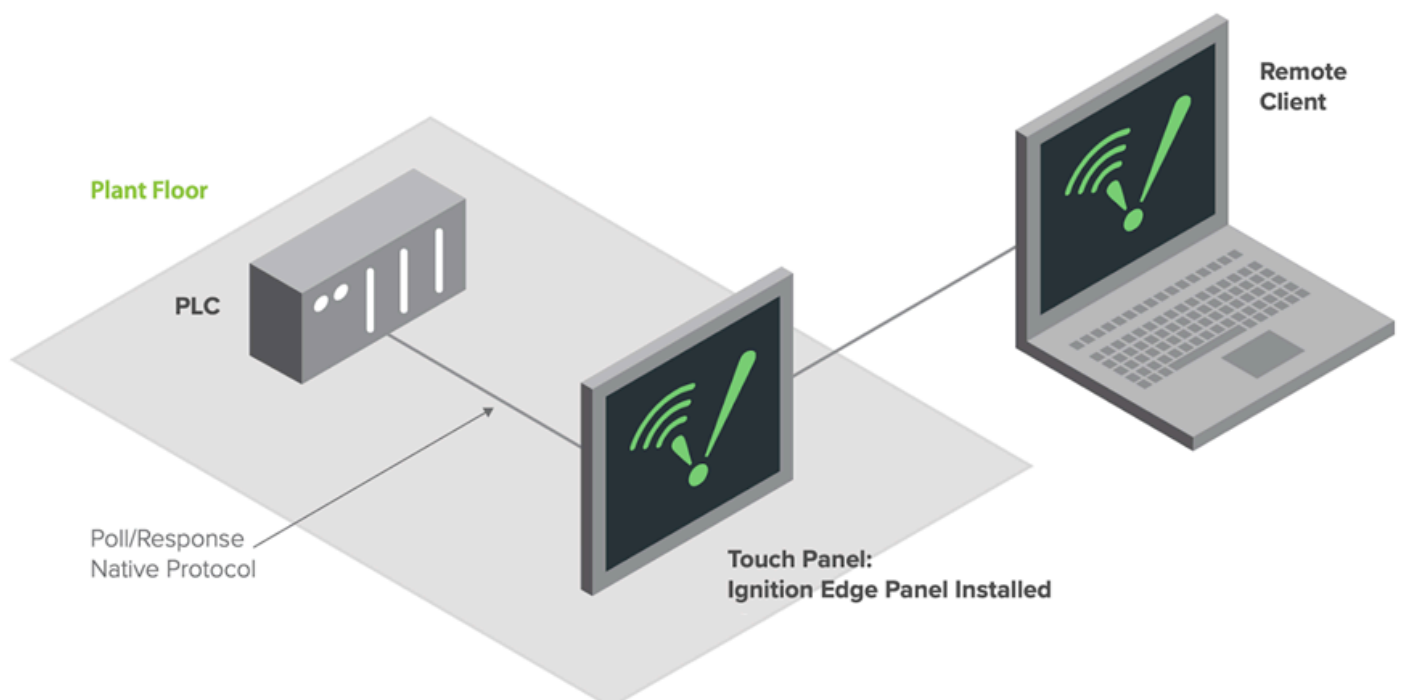
Changed in 8.1.34

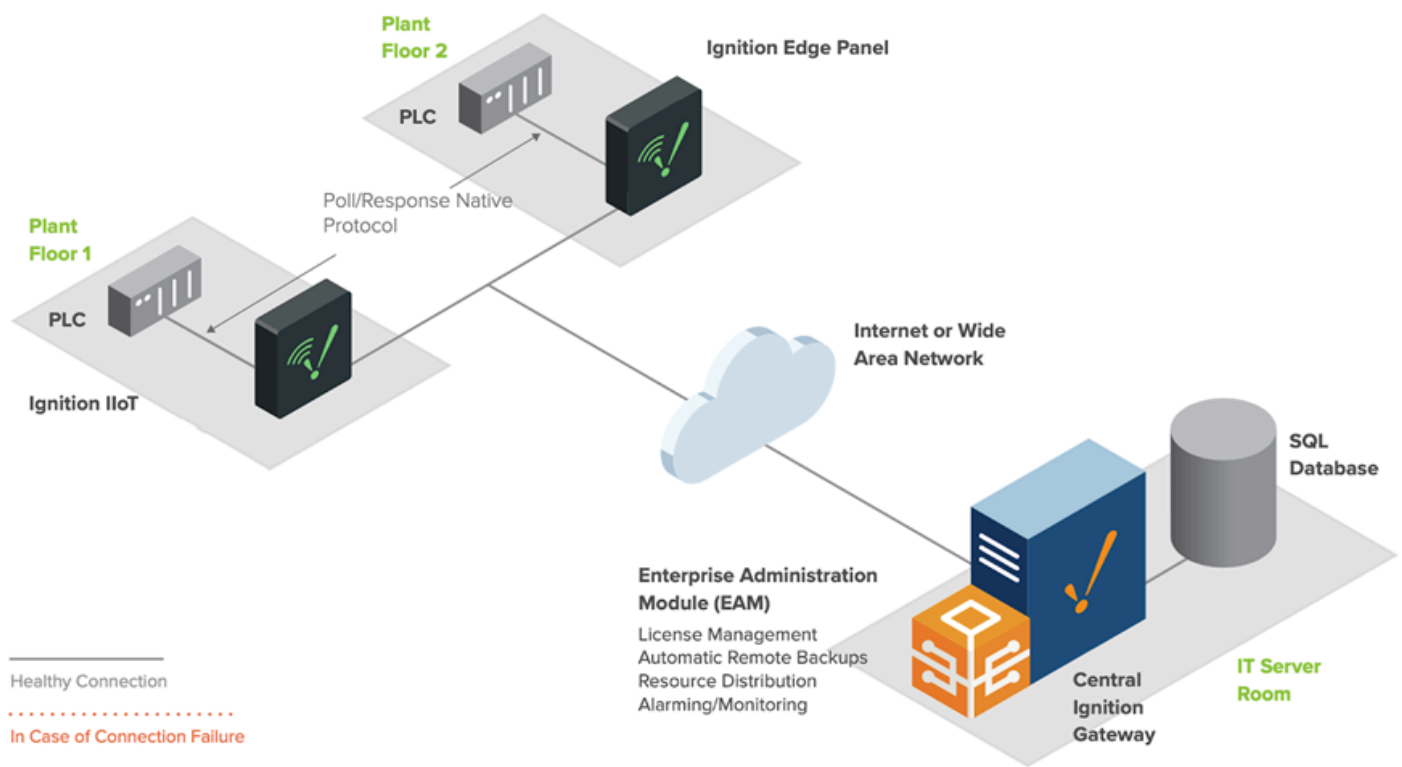
Up to 35 days or 10 million data points of Tag History can be stored locally with an Edge installation. Prior to 8.1.34, local storage was limited to 7 days. Alarm Journal and Audit Log data is still limited to 7 days of storage.

Each Edge product (Panel and IIoT) offers specific functionality that works best in certain scenarios. The diagrams show some architecture options using Edge. Additionally, these architecture diagrams show an Edge Gateway paired with an Ignition Gateway, which shows how an Edge system architecture can be added on to any of the other Ignition architectures.

Panel

Edge with the **Panel** product can act as a stand-alone panel by simply connecting to a local PLC and building a basic screen. When paired with a central Ignition Gateway, the Edge can also act as a local client fallback, providing control on site in the event of a lost network connection.

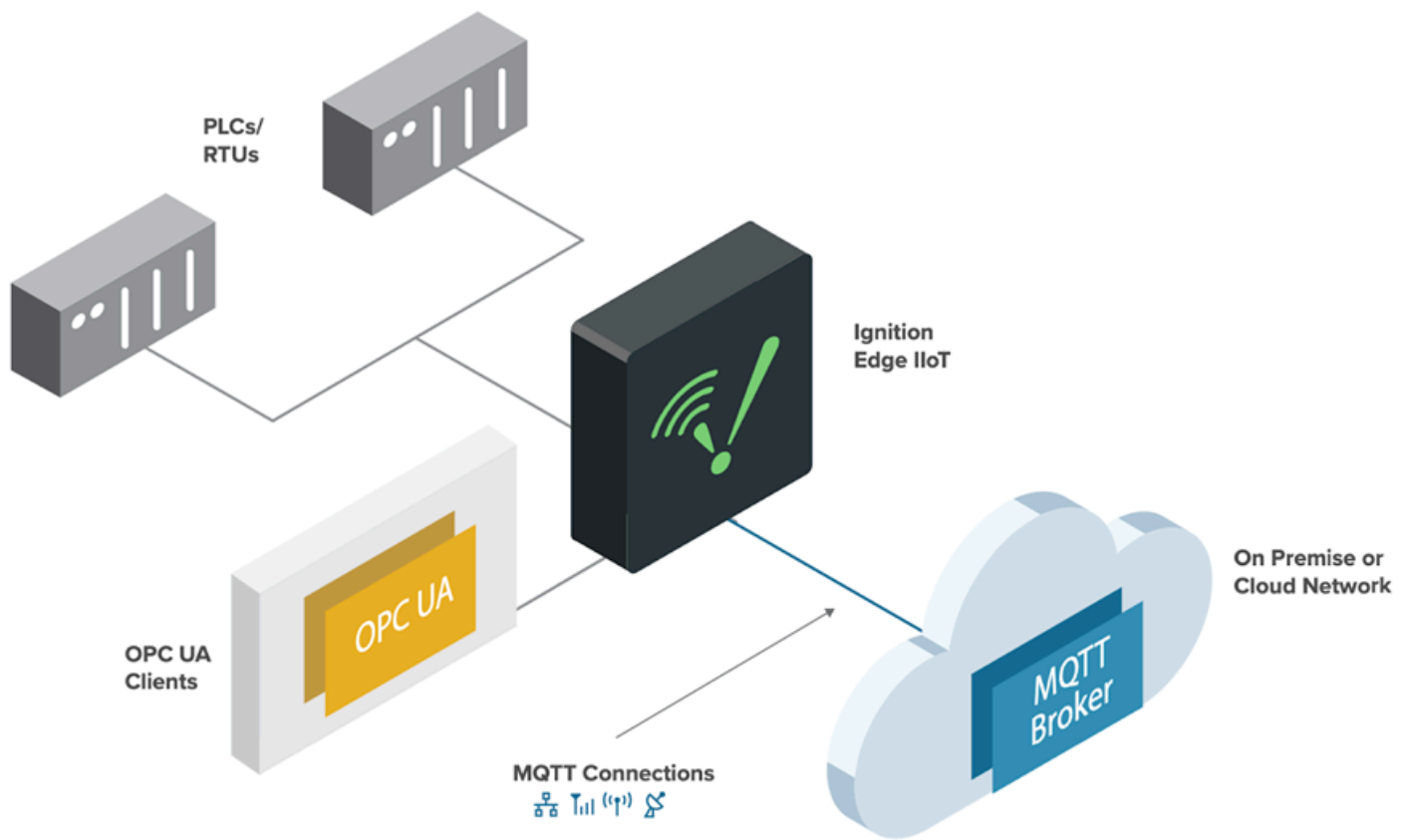




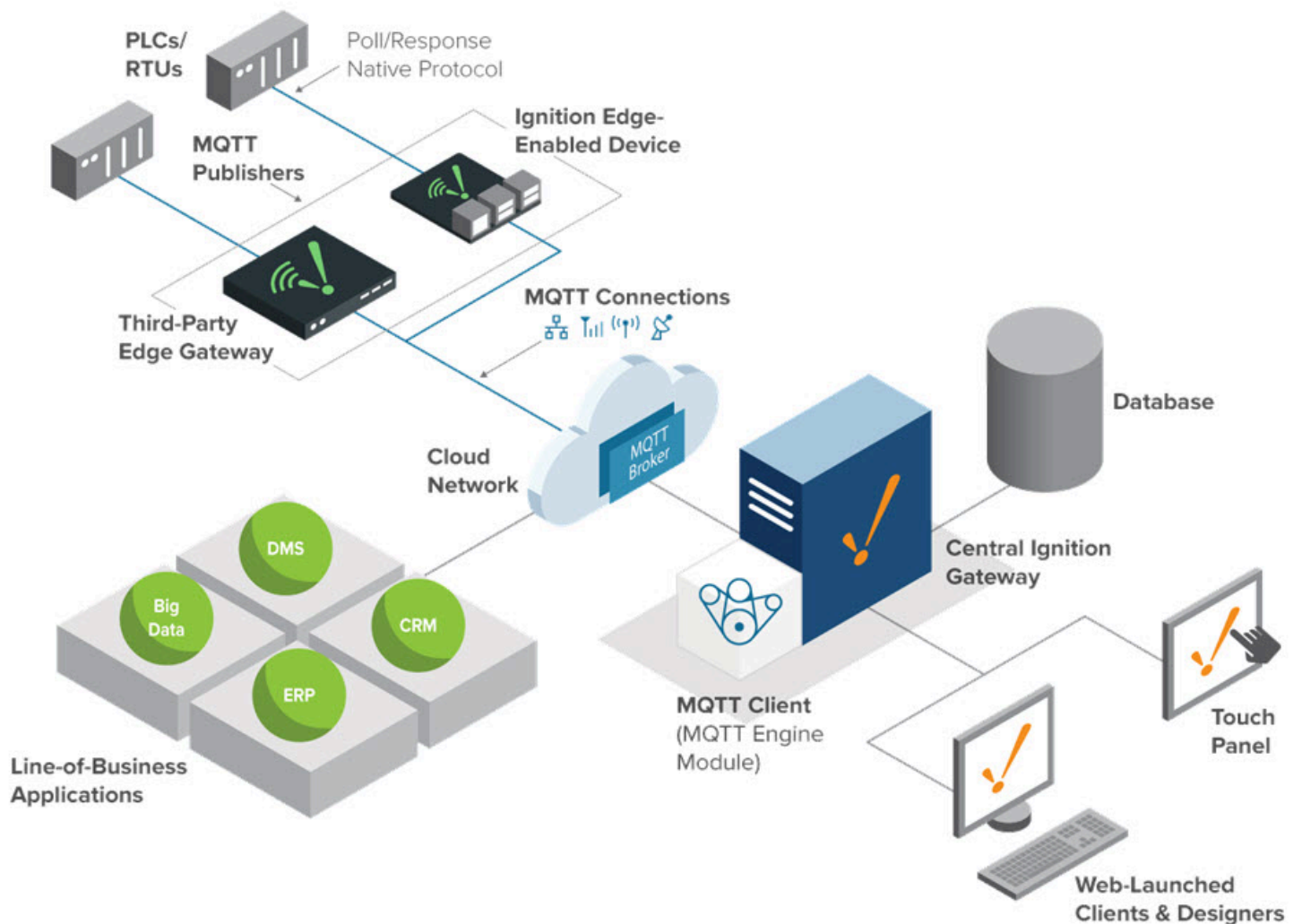
Edge IloT

Edge with the **IloT product** (formerly MQTT) provides a simple way of setting up an MQTT Publisher next to a PLC, allowing it to connect to a greater IloT architecture. Here you can see multiple types of devices using Ignition Edge to connect in the network.

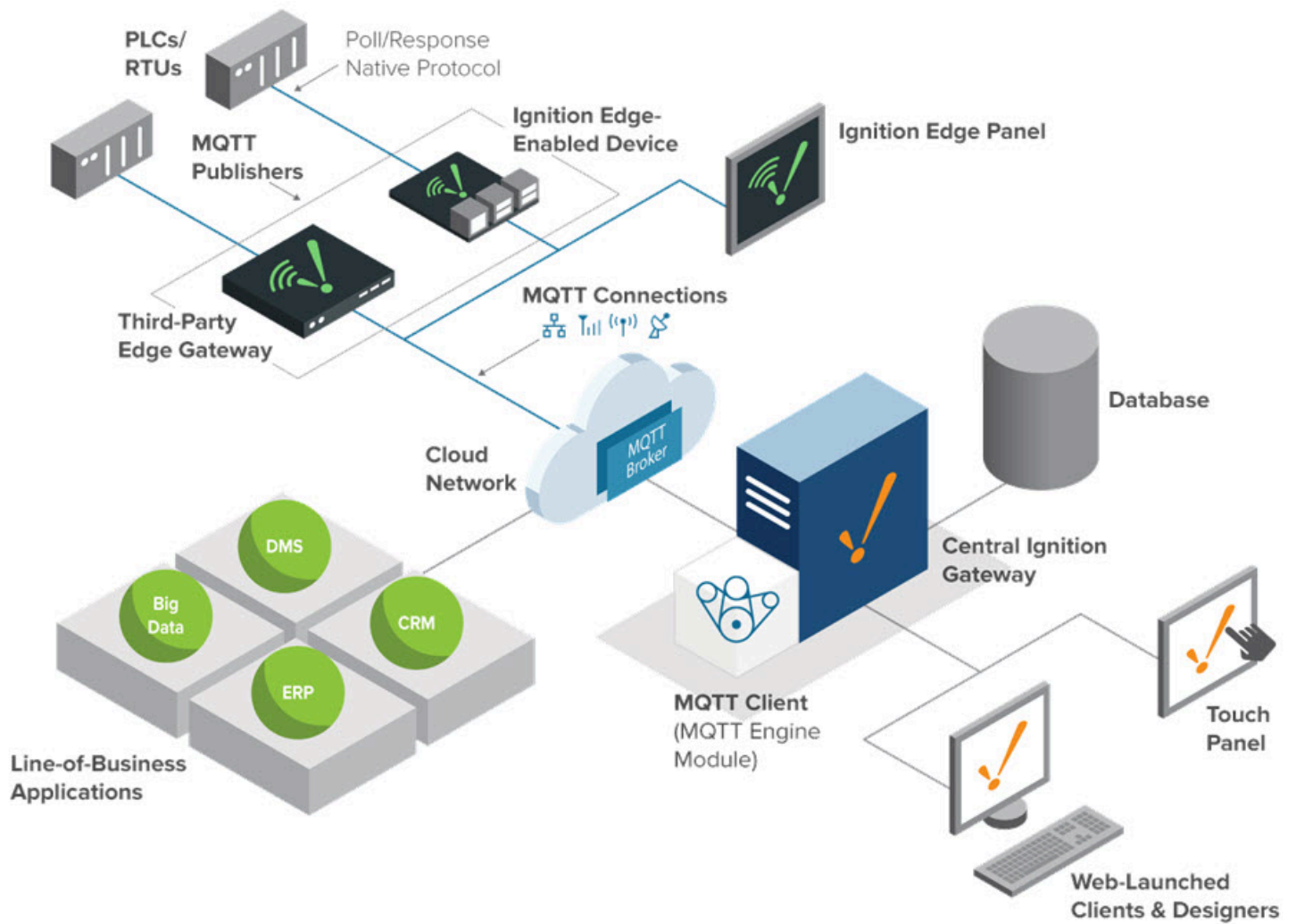
Edge IloT as a standalone Edge Gateway to publish device data from the edge of the network to an MQTT broker:



Edge IIoT as an Edge Gateway to publish device data from the edge of the network to an MQTT broker:



Edge IIoT and **Edge Panel** together to add a local client at the edge of the network and to publish data to an MQTT broker:



Shared Functionality

Edge Sync Services

Ignition **Edge Sync Services**, included with either the Edge IIoT or Panel product, acts as a limited remote server that synchronizes data from the edge of the network to a central Ignition server.

Edge EAM

Edge **EAM**, also included with either the Edge IIoT or Panel product, acts as a remote EAM Agent Gateway and can easily combine with any other Edge edition for central management.

IIoT Architecture

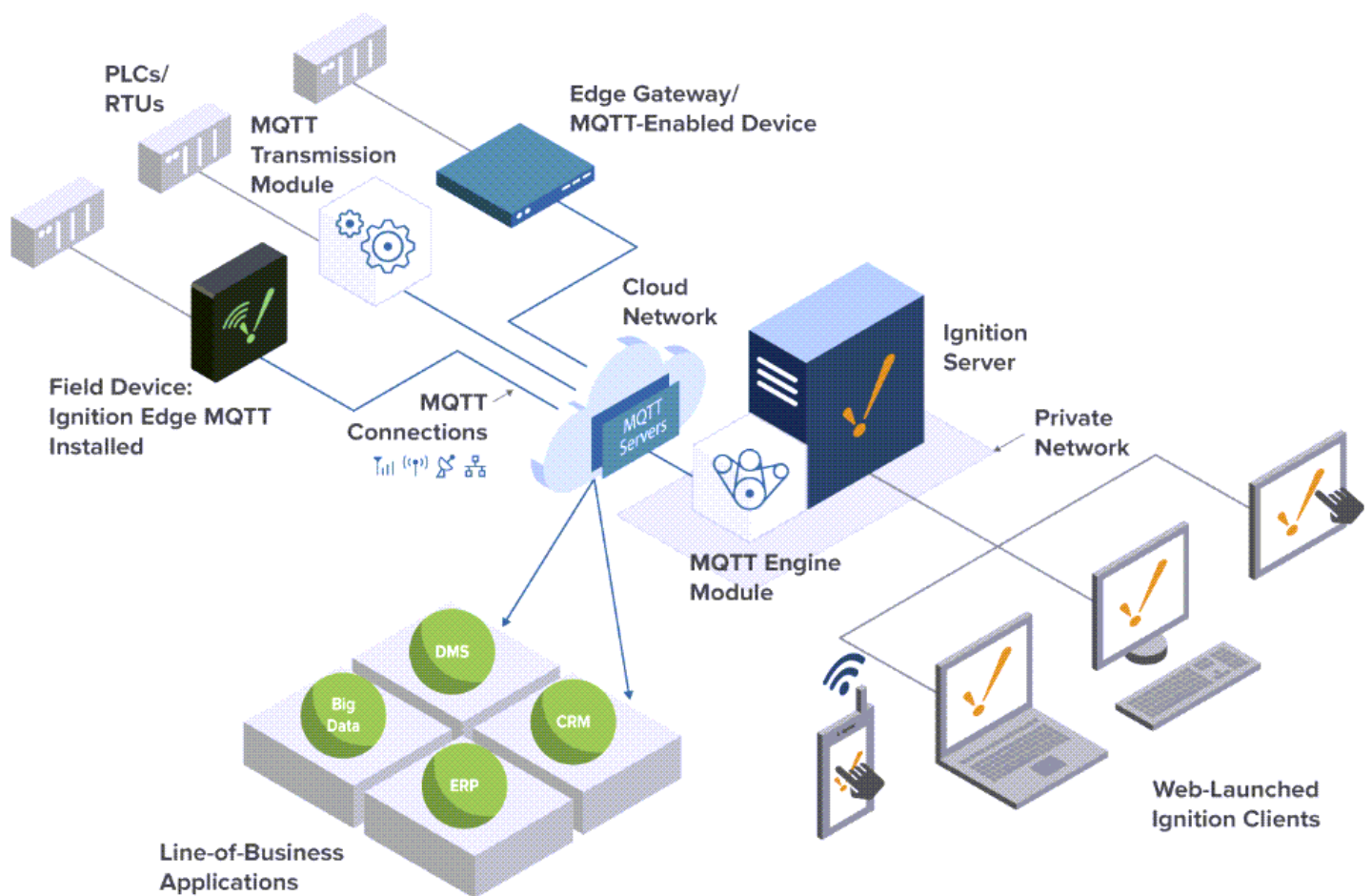
Overview

Ignition can collect data from any devices at the edge of the network, publish that data to a central broker, and push that data to subscribed industrial and line-of-business applications. Ignition IIoT can connect to PLCs in the field through the use of the MQTT Transmission module, field devices with Ignition Edge MQTT installed, and/or MQTT-enabled edge gateways and field devices that use the Cirrus Link Sparkplug MQTT specification. This data is published to an MQTT broker, this broker can be located on-premise, in the cloud, or a hybrid of the two. The MQTT Engine module located on an Ignition Gateway can subscribe to any data published from the broker. This data can be used in any Ignition application.

IIoT Architecture Example

IIoT architecture typically involves the use of the MQTT protocol to communicate with a large number of devices. MQTT is a lightweight and secure protocol that makes use of a unique publish/subscribe transportation method. Additional information on the MQTT protocol and modules can be found in the [Cirrus Link documentation](#).

The [Basic Architecture](#) can easily be expanded with the MQTT modules to collect data from numerous Edge of Network devices. Data collected by the MQTT Engine can be historized and presented in a client with the Vision module, or via reports with the Reporting module.



IIoT Architecture Objects

The following are key pieces in the IIoT Architecture.

Field Device

A Field Device of some sort can be used to connect to a PLC. This device also needs to be able to publish Tag values to an MQTT server. Any of the following hardware can act as a Field Device:

- Ignition Edge with the MQTT product
- Ignition server with the MQTT Transmitter Module
- Third-party MQTT enabled device

MQTT Server (Broker)

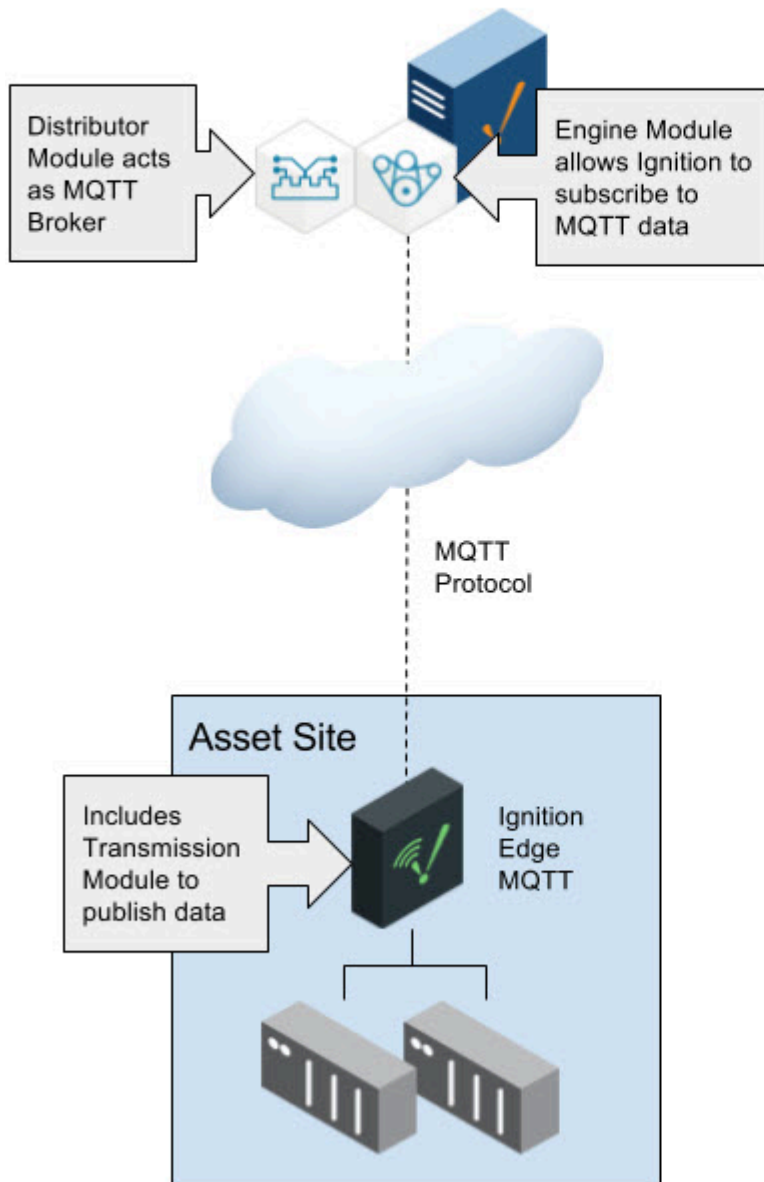
An MQTT Broker is a server that can communicate with your Field Devices via MQTT. This can be an Ignition Gateway with the MQTT Distributor Module installed, or a third-party server, such as a [Chariot MQTT Server](#).

Subscriber

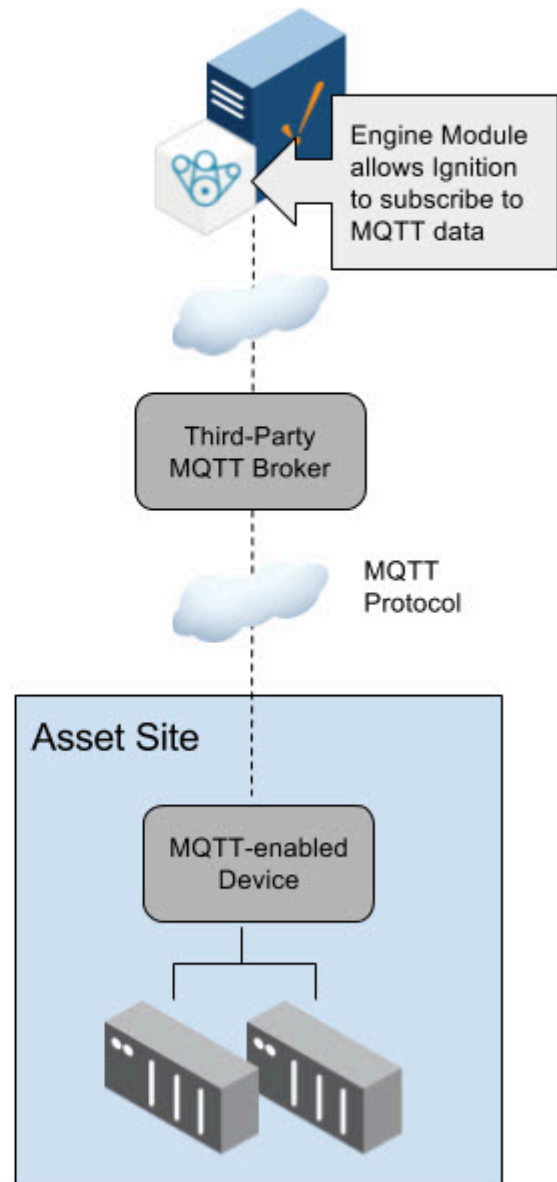
A subscriber is some application that subscribes to topics in the Broker. In regards to Ignition, this is the Gateway with the the MQTT Engine Module installed.

More details on the MQTT modules can be found in the [Cirrus Link documentation](#).

Architecture with Ignition MQTT



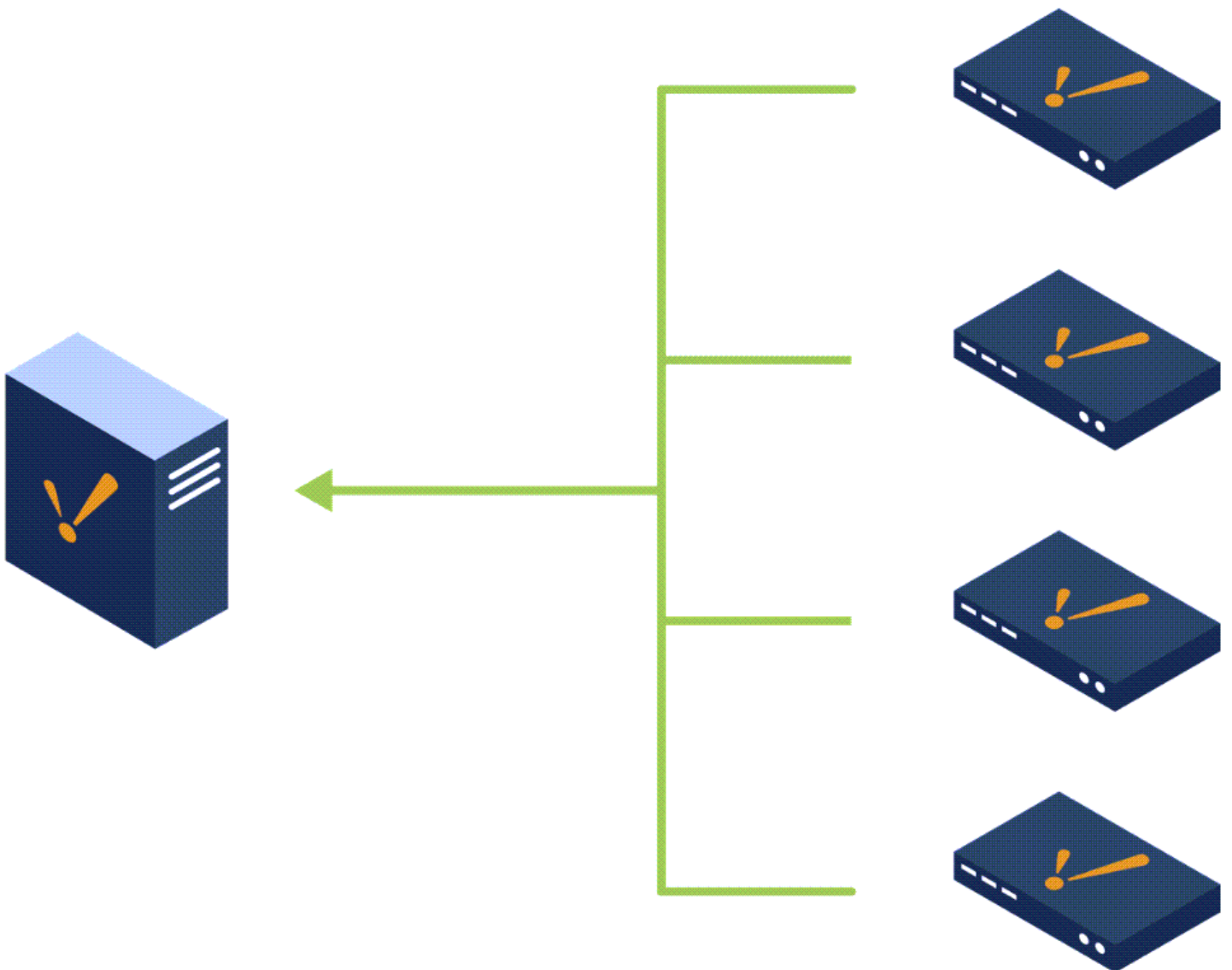
Architecture with Third-Party MQTT



Enterprise Architecture

Many types of architecture involve multiple Ignition servers. Eventually, some assistance overseeing each server can be helpful. Enterprise Architecture typically involves having a mechanism to monitor and manage multiple Ignition Gateways. This involves utilizing the [Enterprise Administration Module \(EAM\)](#).

EAM specifies one Gateway as the Controller, and the others as Agents. Connections between these Gateways take advantage of the [Gateway Network](#), which is a secure method multiple Gateways can use to share information.



Why Use Enterprise Architecture

System Management

Monitoring the health of several systems can be time consuming. EAM streamlines system management by having each Gateway report to a single Controller Gateway. This Controller can then generate alarms when problems occur, or assist in recovering from a hardware failure. Agent events can be stored in a SQL database, and easily incorporated into an Ignition Report. The best part is that the EAM can easily be incorporated into any architecture where multiple Gateways are present.

Project Synchronization

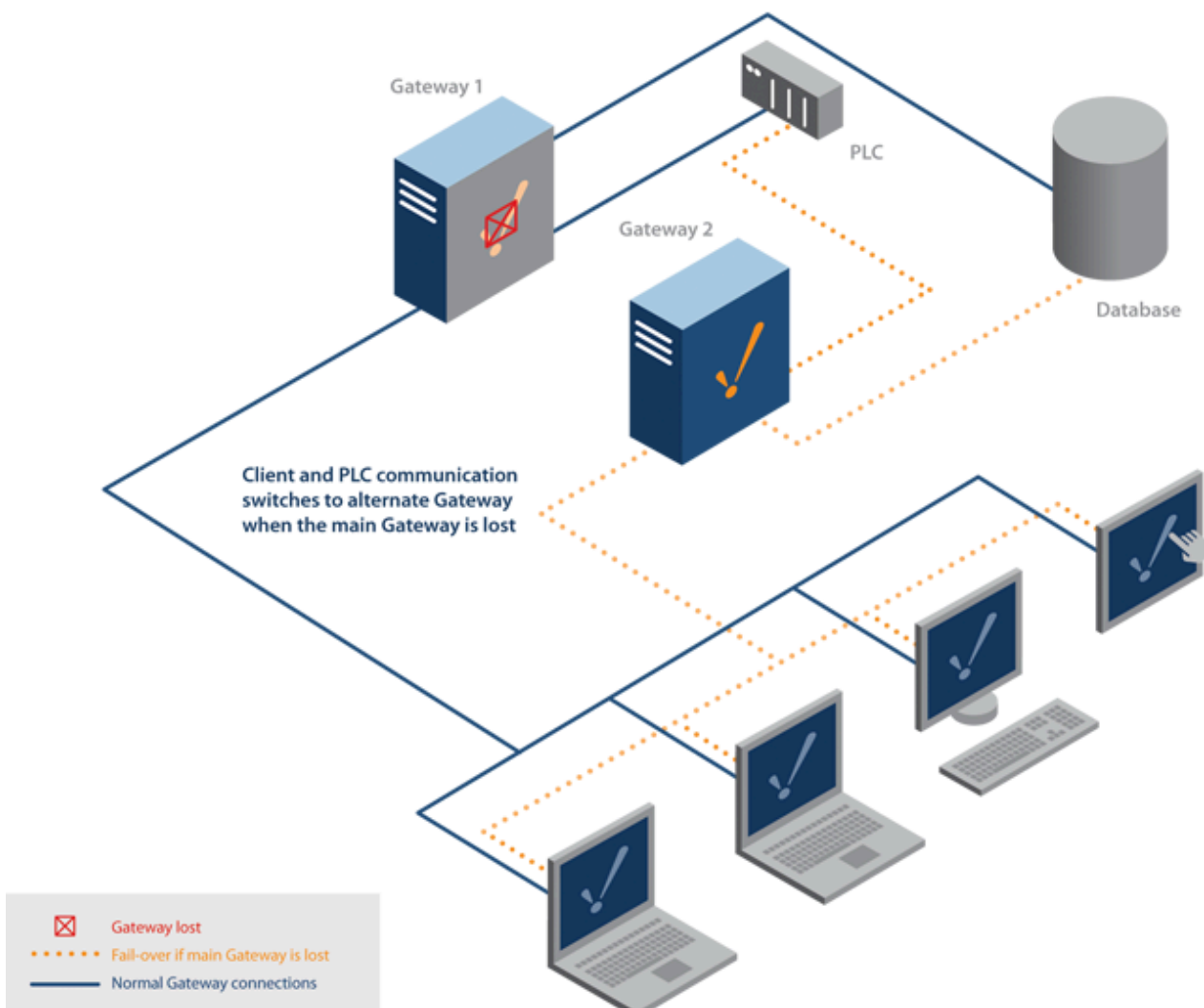
When multiple Gateways are used to launch clients, such as in the [Hub and Spoke Architecture](#), standardizing the look and feel of projects across both Gateways is important for a consistent organization. With EAM, the Controller can synchronize resources across multiple Agents, allowing development to occur on one Gateway, and updates pushed out to other Agent automatically.

Redundancy Architecture

Mission Critical - Gateway Redundancy

Using **Redundancy**, two Ignition installations can be linked together, so if one server fails, the other takes over and continues executing. All of the clients connected will be redirected to the backup machine, and historical data will continue to be logged. The transition is seamless, meaning processes will never be prevented from executing due to one server going down.

Any single installation in the System Architectures can be replaced with a redundant pair of Ignition Gateways. If you have a dedicated backup computer, Inductive Automation offers a cheaper Backup-specific license.



Redundancy Architecture Examples

In this section, we will take a look at several other types of architectures that have been enhanced by redundancy.

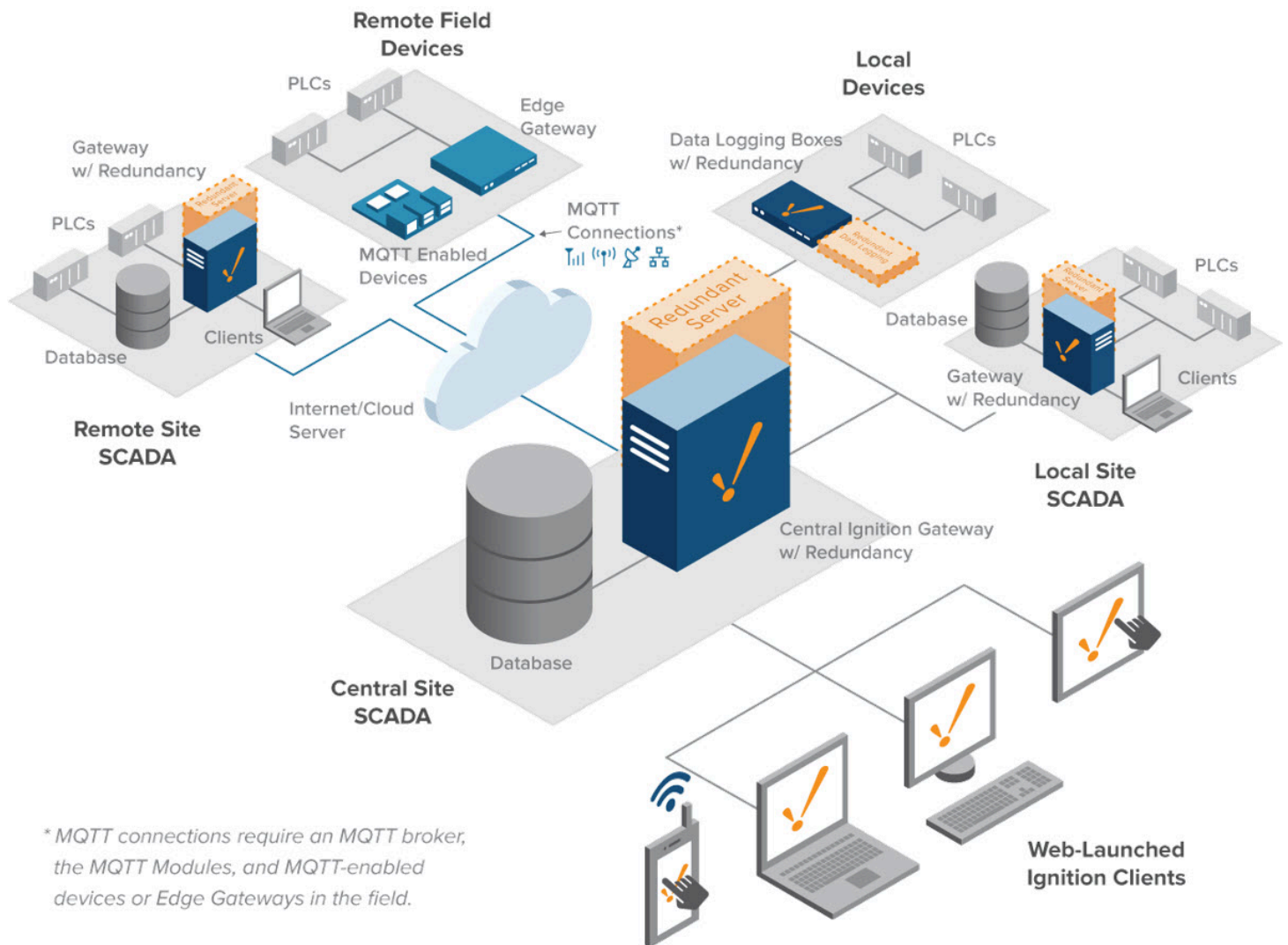
Standard Architecture

Reliability in the **Basic Architecture** can dramatically be improved by adding a redundant server. Should the primary server fail, the redundant server can seamlessly take over, allowing production to continue while the primary is brought back online.



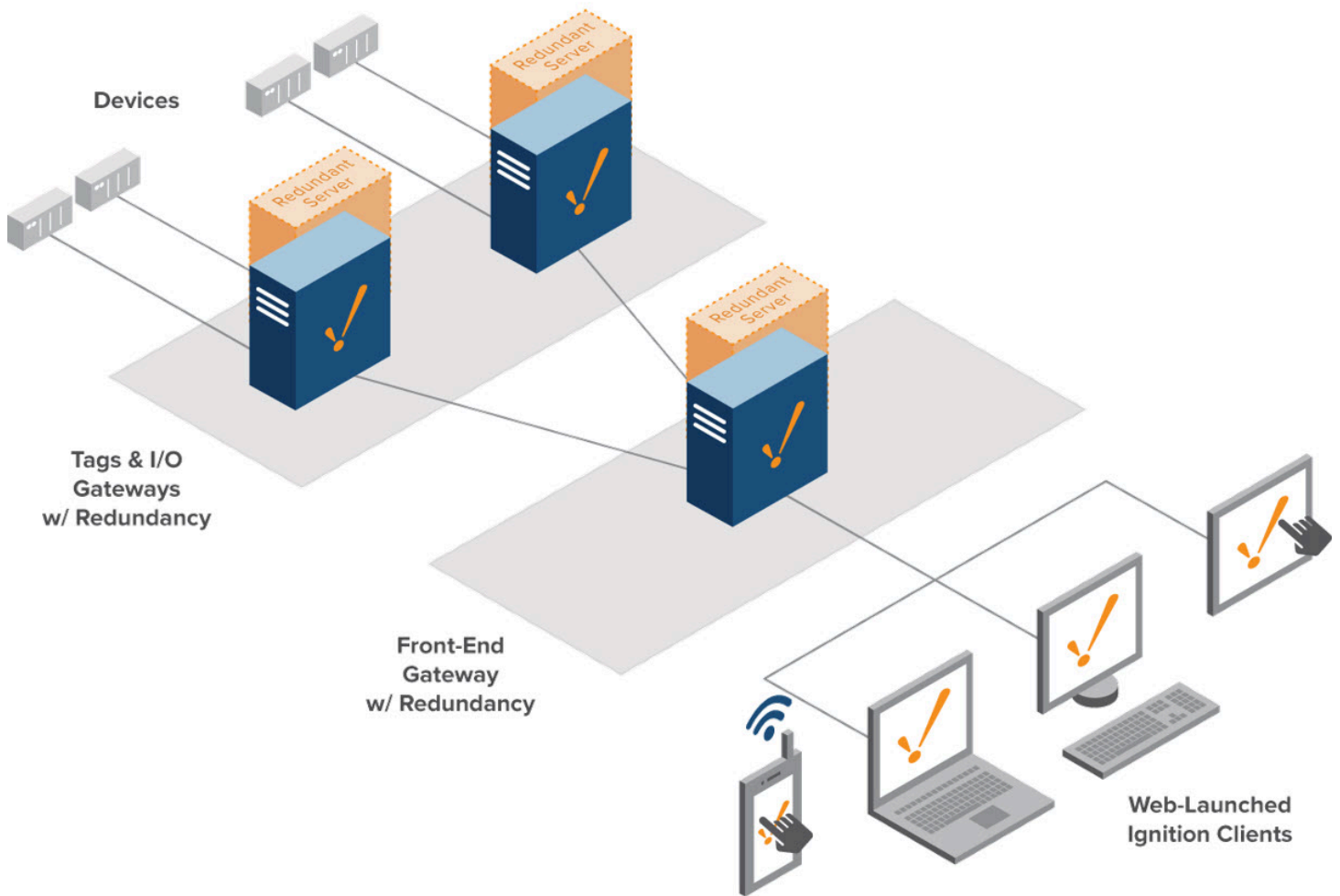
Hub and Spoke

The **Spokes** that contain an Ignition Gateway can be thought of as individual instances of the Basic Architecture. Incorporating a backup server at each of these Spokes will ensure uptime is maintained locally. The **Hub** can also utilize a backup server, which is especially useful if clients are also launched from it.



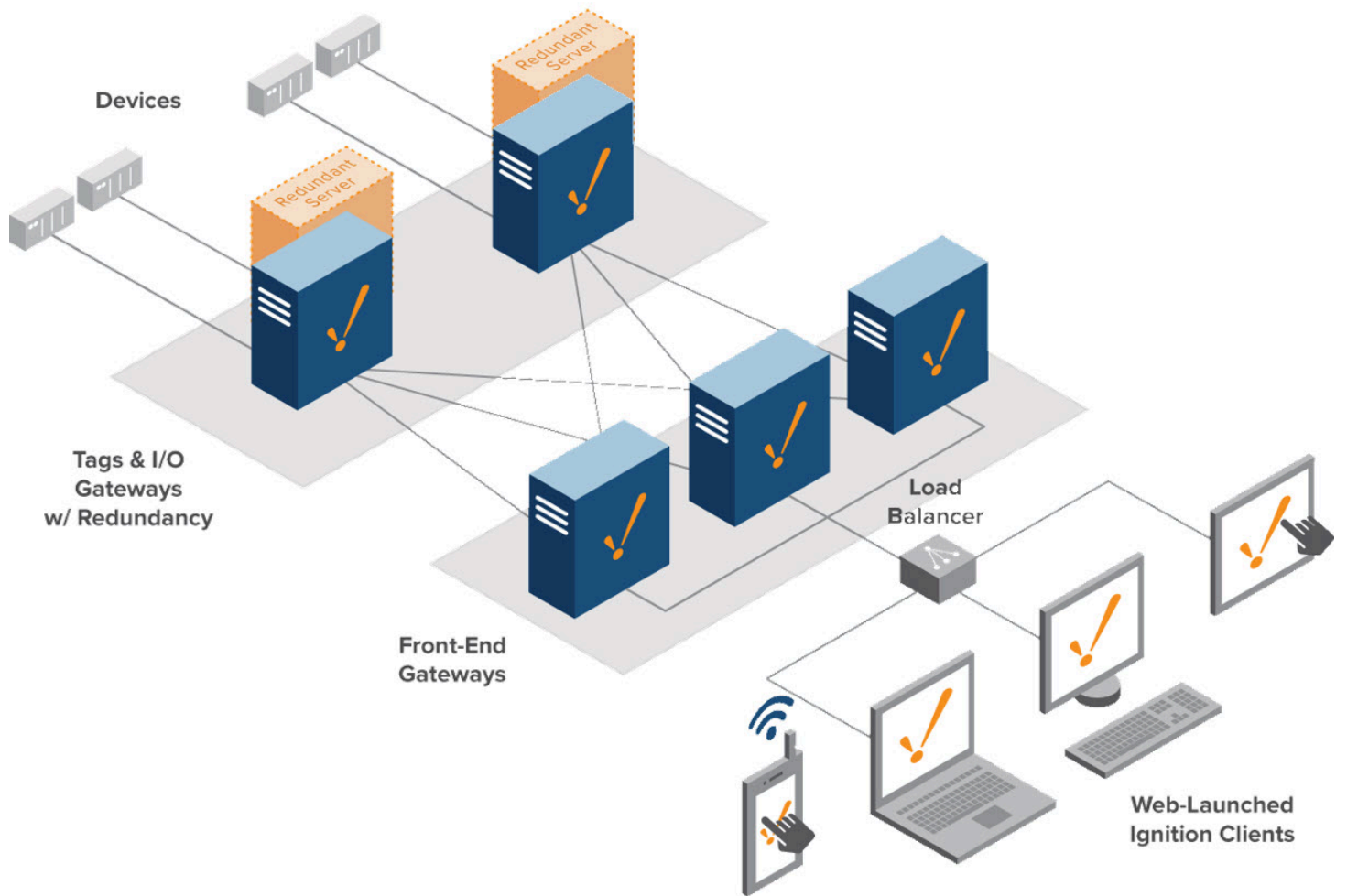
Scale Out Architecture

A server fault using the **Scale Out Architecture**, while not fatal to the whole system, can cripple the system. Without a Load Balancer, a Backup Gateway should be utilized at each Gateway. These means each Gateway has a failsafe ready to take over in the event of a failure.



Scale Out Architecture with a Load Balancer

When utilizing a **Load Balancer**, redundancy should not be applied to the Front-End Gateways: the Load Balancer is responsible for distributing the workload amongst the front-end, so a backup Gateway is not required. However, an extra Front-End Gateway could be incorporated to act as a failover. If you plan on having three Front-End Gateways active at any time, then a fourth Gateway should be available in case one server faults.



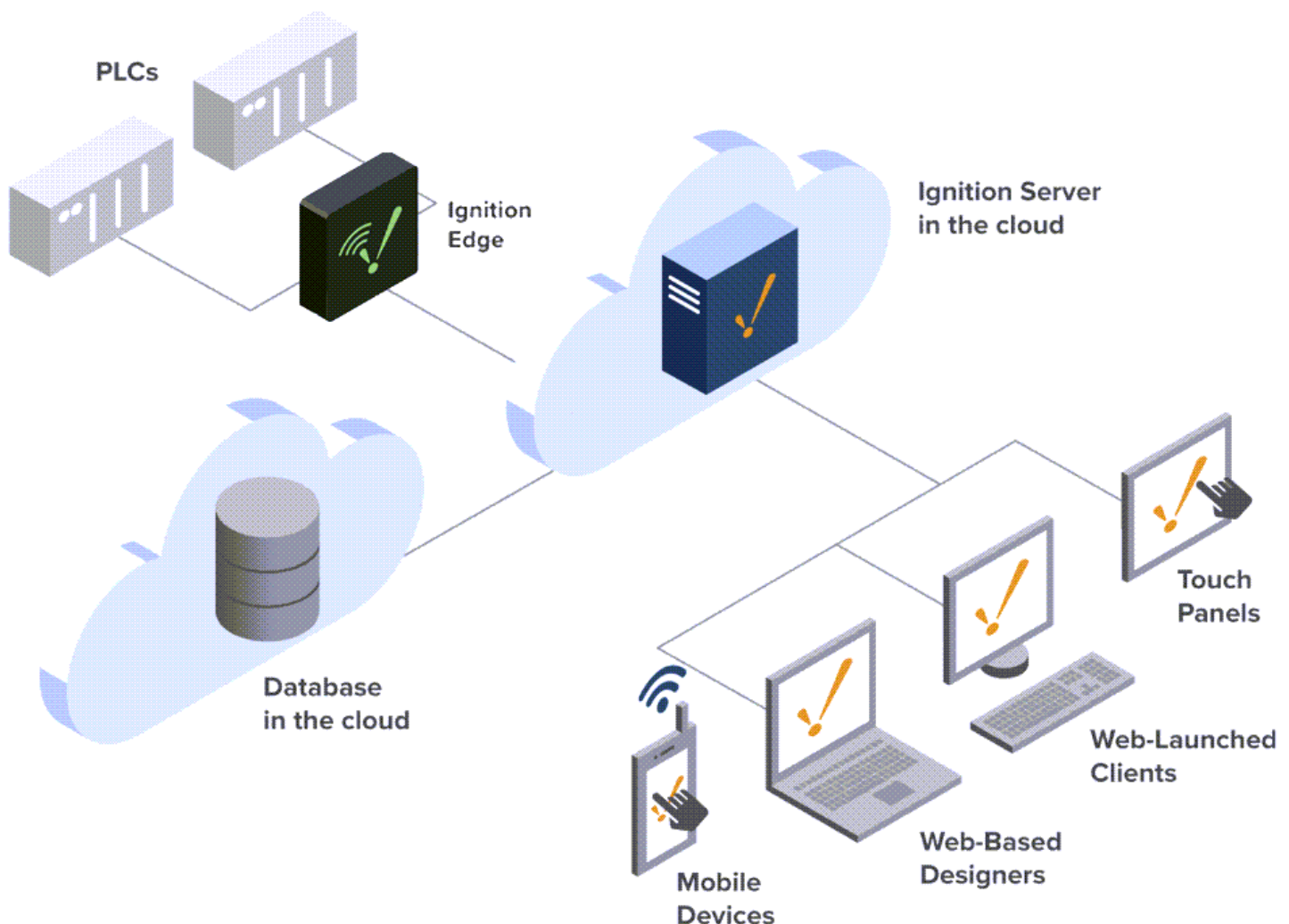
Cloud Based Architecture

Hosted Ignition Server

Ignition server can be hosted in the Cloud. Inductive Automation does not provide cloud services, but there are many great providers out there, such as Amazon EC2, or Windows Azure. The server can connect to the PLCs at the remote or customer sites via Round Robin Poll, Cell Tower, Satellite, or Secure VPN. The clients are connected to the Ignition server via Internet.

Architecture Example

In this example, we see the **Basic Architecture**, but with the Ignition Server and Database both running on cloud servers. Note, that the Database and Ignition are on different cloud servers. This is because cloud service providers generally have specialized services that are designed explicitly for hosting SQL databases, as well as more general purpose services such as running Ignition. An installation of Ignition Edge is placed local to the PLCs, and is responsible for forwarding data to the cloud.



Why Use a Cloud Based Architecture?

This type of architecture is ideal in smaller organizations since you don't have to worry about maintaining a server. Additionally, there is no on-site IT staff required to monitor the system.

Does the Database Always Have to be in the Cloud?

If Ignition is hosted in the cloud, then it is very common to have your database also hosted in the cloud. However, many of our customers find that also having a controls database on-site to store temporary or in-progress data useful. This is great when you want to have data stored locally.

Are Cloud Based Servers Secure?

Cloud based servers are increasingly common, but it is important to educate your organization on the risks associated with them. If your organization is interested in a cloud based solution, we recommend following the guidelines in the [Ignition Security Hardening Guide](#), as it addresses many potential security issues for both cloud and non-cloud based servers. Additionally, it offers recommendations on how to better protect your system.

Should I have a Redundant Ignition Server in the Cloud?

If you are using redundancy or are concerned about uptime, you should be using Ignition redundancy regardless of whether your Ignition is in the cloud. While most cloud providers offer built-in redundancy, this is often much slower than Ignition's redundancy failover time. Typically Cloud Server redundancy has a new computer instance spun up (started) in the event the original fails. This will often take a couple minutes where Ignition's redundancy (with default settings) takes around 20 seconds to switch over. There are other options to make a Cloud Server start faster, but currently they all slow down the CPU substantially to make it possible.

What if I Require an On-Site Server with Redundancy?

If you are using Ignition's Redundancy with a Cloud Server, then typically we recommend that both of the servers are run side-by-side. This means either both in the cloud or both on site. One warning: If you have both instances of Ignition in the cloud but if your connection to the internet goes down, then you lose access to both instances of Ignition.

Cloud Service Suggestions

Many customers find the following cloud-based service suggestions helpful:

Amazon Web Services

- Ignition Hosting: [AWS EC2 Instance types](#). The M3 and M4 instance types meet most customers needs in regards to hosting Ignition.
- Database Hosting: [AWS Relational Database Service](#).

Microsoft Azure

- Ignition Hosting: [Azure for Discrete Manufacturing](#)
- Database Hosting: [Azure SQL Database](#)

AWS Outposts Architecture

Amazon Web Services (AWS) Outposts is a fully managed service that offers the same AWS infrastructure, AWS services, APIs, and tools to virtually any datacenter, co-location space, or on-premises facility for a truly consistent hybrid experience. AWS Outposts is ideal for workloads that require low latency access to on-premises systems, local data processing, data residency, and migration of applications with local system interdependencies.

AWS compute, storage, database, and other services run locally on Outposts, and you can access the full range of AWS services available in the region to build, manage, and scale your on-premises applications using familiar AWS services and tools.

Inductive Automation is an AWS partner and Ignition can easily be deployed to AWS Outposts.

Use Cases

Easily transition any architecture from an existing infrastructure to AWS Outposts.

On-Premise Ignition or Ignition Edge with AWS Services and Tools

Customers often require ultra-low latency and high bandwidth between their local devices and the SCADA systems. Using the Inductive solution on Outposts, customers will have the benefit of a fully-managed infrastructure with native AWS APIs. Without Outposts, Inductive Automation's customers will need to procure, manage, support, secure, and maintain the hardware and software stack that the SCADA solution will run on.

AWS Connected Factory Solution (Formerly IMC Kit)

The Industrial IoT Segment has used Ignition by incorporating it directly into Connected Factory Solution / IMC Kit (<https://aws.amazon.com/blogs/iot/connected-factory-offering-based-on-aws-iiot-for-industry-4-0-success/>). Customers can use AWS Outpost as mechanism to host the Edge component of IMC Kit workload.

Available AWS Services on Outposts

You can take advantage of the majority of AWS Services on AWS Outposts.

- **VPC** - Amazon Virtual Private Cloud (Amazon VPC) lets you provision a logically isolated section of the AWS Cloud where you can launch AWS resources in a virtual network that you define. You have complete control over your virtual networking environment, including selection of your own IP address range, creation of subnets, and configuration of route tables and network Gateways. You can use both IPv4 and IPv6 in your VPC for secure and easy access to resources and applications.
- **EC2** - Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides secure, resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers. Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction. It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment.
- **EBS** - Amazon Elastic Block Store (EBS) is an easy to use, high performance block storage service designed for use with Amazon Elastic Compute Cloud (EC2) for both throughput and transaction intensive workloads at any scale. A broad range of workloads are widely deployed on Amazon EBS, such as relational and non-relational databases, enterprise applications, containerized applications, big data analytics engines, file systems, and media workflows.
- **RDS** - Amazon Relational Database Service (Amazon RDS) makes it easy to set up, operate, and scale a relational database in the cloud. It provides cost-efficient and resizable capacity while automating time-consuming administration tasks such as hardware provisioning, database setup, patching and backups. It frees you to focus on your applications so you can give them the fast performance, high availability, security and compatibility they need. Limited to MySQL and PostgreSQL on AWS Outposts.

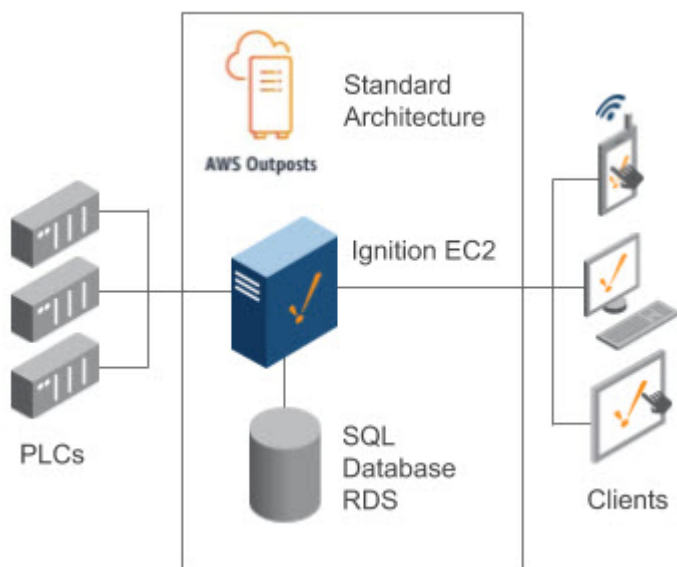
The most common use case is to deploy Ignition to an EC2 instance backed by an EBS volume and store historical data in a RDS database.

Architectures

There are many architecture options available on AWS Outposts.

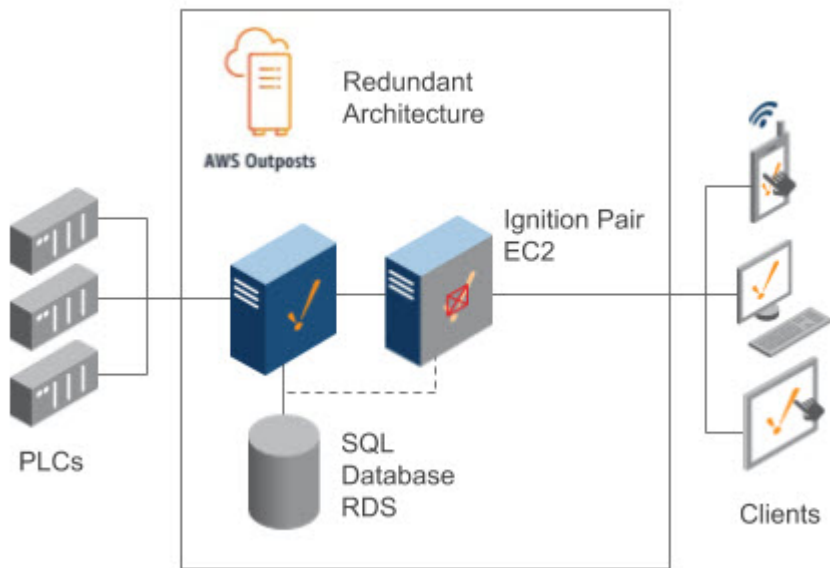
Standard Architecture

Ignition's most common architecture consists of a single on-premise Ignition server connected to a SQL database (RDS), PLCs, and clients.



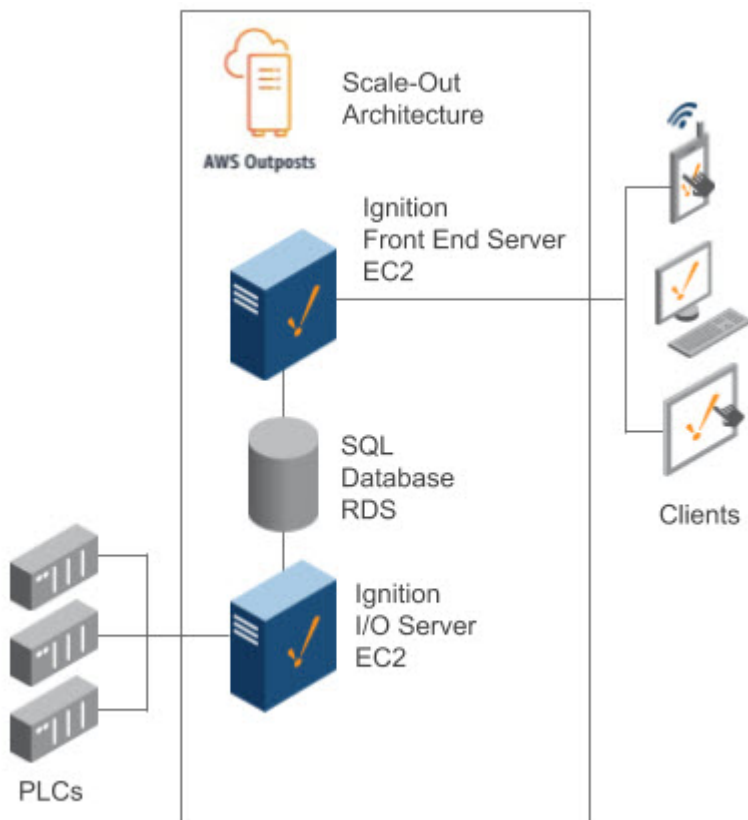
Standard with Redundancy Architecture

Another common Ignition architecture consists of a single on-premise Ignition server (with a redundant server) connected to a SQL database (RDS), PLCs, and clients.



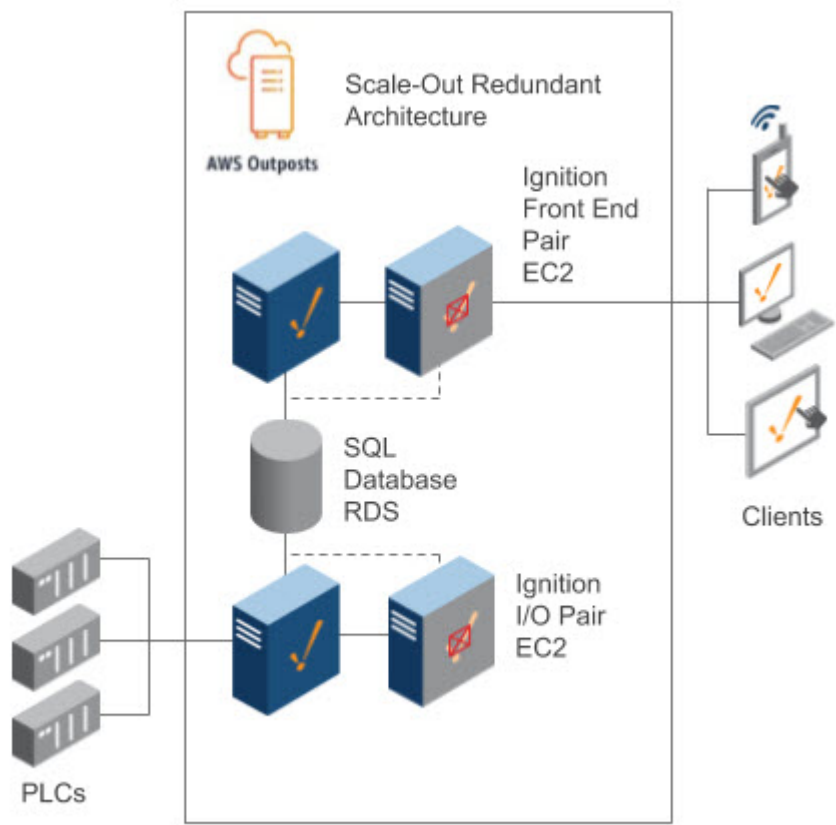
Scale-Out Architecture

The scale-out architecture links together several Ignition Gateways to form a decentralized system. You can easily separate out Ignition's I/O from the front end and scale each independently.



Scale-Out with Redundancy Architecture

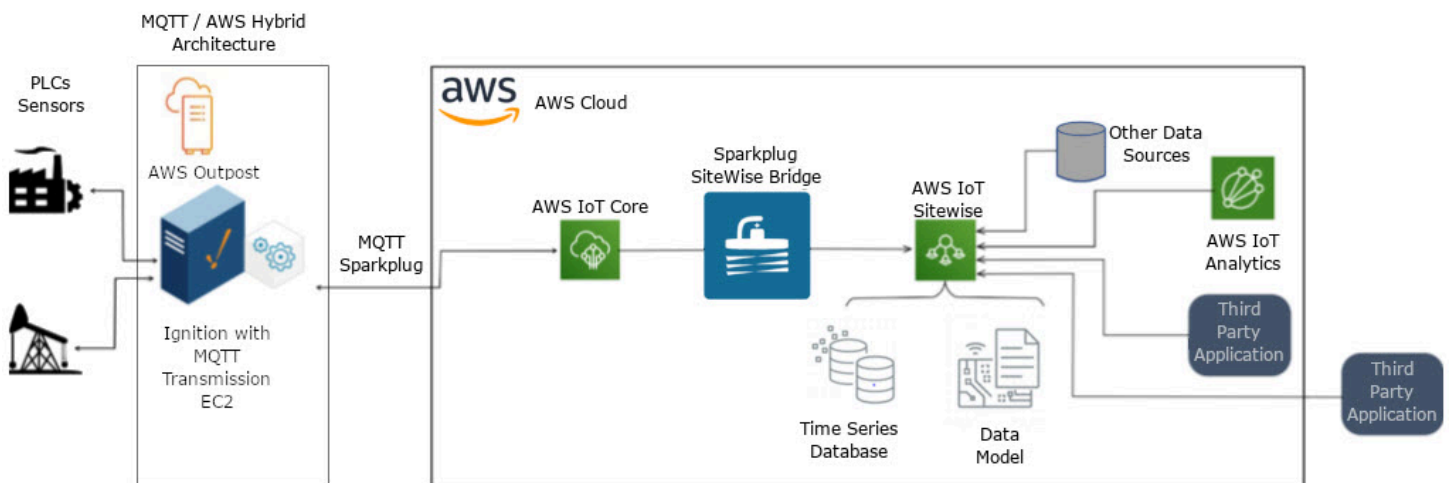
The scale-out architecture with redundancy links together several Ignition Gateways (with redundant servers) to form a decentralized system. You can easily separate out Ignition's I/O from the front end and scale each independently.



AWS Connected Factory Architecture (MQTT and AWS SiteWise)

You CAN easily combine on-premise solutions running on AWS Outposts with AWS Cloud services. With the use of Inductive Automation's Ignition platform, and Cirrus Link MQTT modules and Sparkplug SiteWise Bridge, OT data from Industrial applications is delivered to AWS IoT SiteWise with minimal configuration and zero coding. Simply point the Cirrus Link module at the AWS IoT service. The asset model, properties, and hierarchy are 100% self-discovered by SiteWise. Then real-time data is securely and efficiently delivered directly to the SiteWise time series database for Big Data Analytics, ML and AI. This solution provides the simplest data ingest for AWS SiteWise delivering the Digital Transformation organizations are striving to achieve.

- Automatically Discovery of Assets
- Automatically Creates Asset model
- Automatically Defines Asset properties
- Automatically Defines Asset hierarchy
- Efficiently pushes Tag Data into SiteWise Time Series Database
- Requires No Coding, just a little Configuration



Learn more about [AWS SiteWise and Sparkplug SiteWise Bridge](#).

Redundancy on AWS Outposts

It is possible to deploy Ignition in a redundant configuration on AWS Outposts. Using Redundancy, two Ignition installations can be linked together, so if one server fails, the other takes over and continues executing. All of the clients connected will be redirected to the backup machine, and historical data will continue to be logged. The transition is seamless, meaning processes will never be prevented from executing due to one server going down. Any single installation in the System Architectures can be replaced with a redundant pair of Ignition Gateways.

High Availability on AWS Outposts

Ignition only supports high availability with the front end (Vision or Perspective) running behind a load balancer in a scale-out architecture. You can easily deploy one or more front end servers behind a standard load balancer such as nginx or HAProxy. You cannot use AWS Load Balancer since it doesn't support "sticky sessions" on AWS Outposts currently. The load balancer must support "sticky sessions" in order for the client to function properly. It is recommended to set the "sticky" duration to 1 hour.

How to Deploy Ignition to AWS Outposts

Deploying Ignition to AWS Outposts is extremely easy.

1. Create a new VPC with private subnets and public subnets.
2. Set up a NAT Gateway if your EC2 instances need Internet access.
3. Spin up an EC2 instance on AWS Outposts. You can use a Windows or Linux OS. It is recommended to use Microsoft Windows Server 2019 Base or Ubuntu Server 20.04 LTS, as they are tested by Inductive Automation's Quality Assurance team. The recommended minimum specs of an EC2 instance is:
 - 4 vCPUs
 - 8 GiB Memory
4. Download and install Ignition on the EC2 instances.
5. Make sure to set up proper security groups to only allow ports 22 (SSH), 8088 (Ignition HTTP), 8043 (Ignition HTTPS), and 3306 or 5432 (database).
6. Spin up a MySQL or PostgreSQL database in RDS. You can also install a database in an EC2 instance and manage yourself. It is recommended to use RDS.
7. Connect Ignition to SQL database.
8. Build your project and have fun!

Common EC2 Instance Types

You can deploy Ignition to virtually any EC2 instance type. Recommended to use EBS backed volumes. Most customers deploy Ignition to the following:

- m5.xlarge
- m5.2xlarge
- c5.xlarge
- c5.2xlarge

- r5.xlarge
- r5.2xlarge

How Do I Get Support?

Inductive Automation is dedicated to providing our customers with high quality product support. There are 2 types of support options available: solution support and technical support. Inductive Automation has a partnership with AWS. The Sales Engineering team is certified as AWS Solution Architect Associate. The team can help figuring out the right architecture and configuring AWS services. Simply schedule a call with the team through your account representative.



Visit our [Support, Feedback, and Resources](#) page for complete information on technical support.

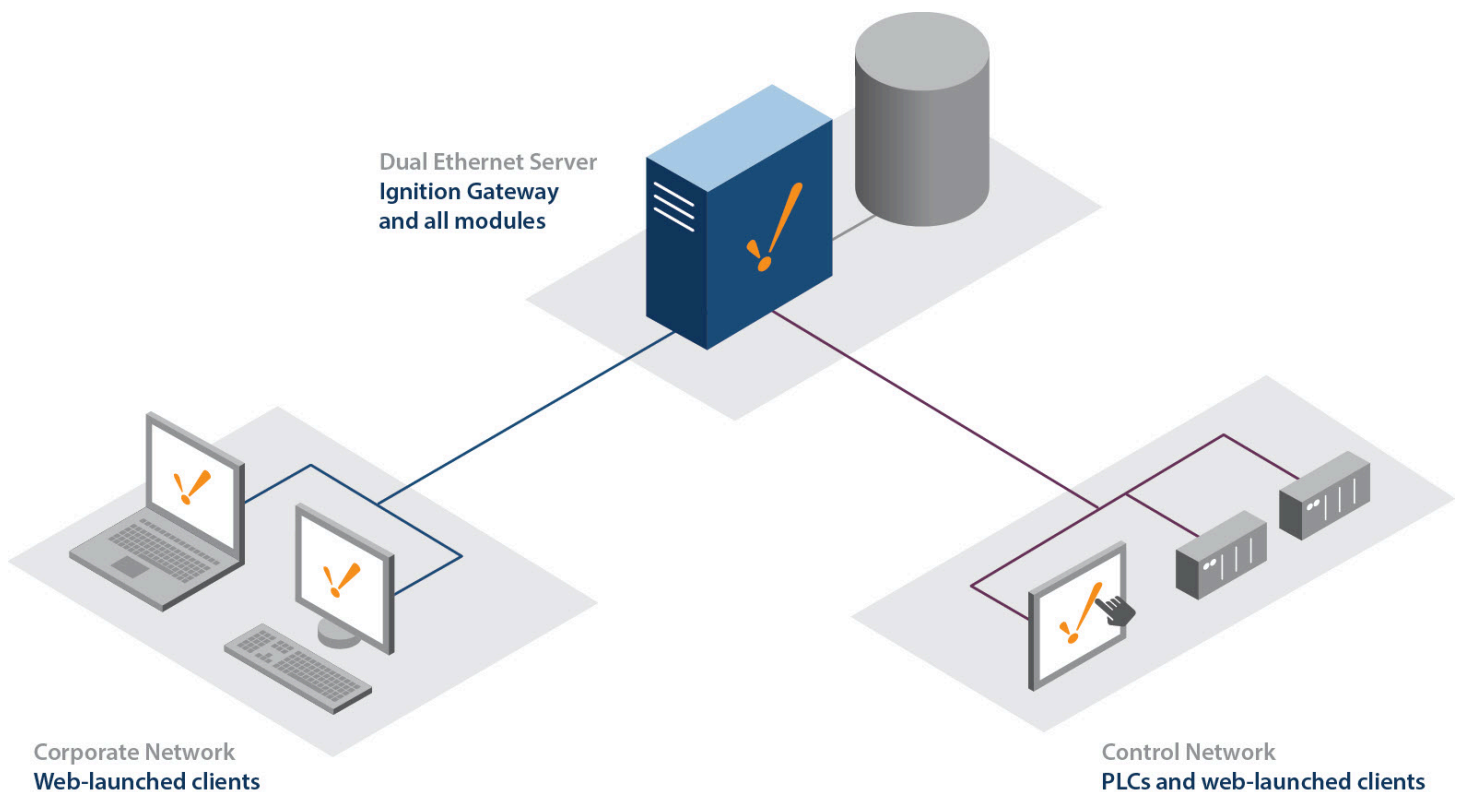
Security Architecture

Network Segmentation

Network segmentation is a powerful technique for securing an Ignition Architecture. Inductive Automation recommends adhering to proven strategies and standards such as ISA 62443 “zones and conduits”, “Zero Trust”, NIST or ISO standards, or other industry accepted approaches.

Consumers of each class of traffic should communicate with Ignition Gateways, but not with other types of consumers. For example, Ignition communicates with PLCs, Ignition communicates with databases, users communicate with Ignition, and Ignition gateways communicate with each other. The principle of least privilege suggests that users, PLCs, and databases should not be able to communicate with each other directly.

Network segmentation can be applied externally to Ignition using standard IT and OT technology such as routers, switches, firewalls, and load balancers. Ignition Gateways can communicate securely with each other using HTTPS with 2-way trust based on certificates over port 8060 (definable) via the **Gateway Network**. Secure communication is also possible using MQTT.



One Server, Multiple Networks

The Ignition Gateway supports dual-NIC servers, and can act as a bridge between multiple networks, or communicate with multiple sites over a corporate WAN. Since clients talk to databases and PLCs

through the Gateway, clients can be launched from both a corporate network and an isolated control network, and provide full access to both. Built-in **security settings** can restrict project access to users on different networks, either by restricting certain things in a project, or denying access to a whole project based on user role and network location.

Best Practices

Start with the **Ignition Security Hardening Guide** and the **Server Sizing and Architecture Guide** for an overview on how to implement Security Architecture.

Security Engineering

Security Engineering is required for non-standard applications and Enterprise Integration. The **ISA 62443** series of standards is a great starting point to determine the level of security required to meet your risk needs. The **NIST Cybersecurity Framework (CSF)** is another option.

Be especially careful with high access or risk environments, such as Internet accessible Gateways, or Operational Technology (OT) environments with high safety requirements.

Separate Architectures

Using a single Ignition system to perform distinct functions increases risk. Consider separating Ignition architectures and security providers (e.g. Identity Providers, databases, etc) when:

- Dealing with multiple different application types (“use cases”)
- Dealing with different types of sensitive data (e.g. Personally Identifiable Information, banking, versus organizational trade secrets)

Stateless Services

Frontend Ignition Gateways host “stateless” services with visualization modules such as Perspective, Vision, and Reporting. Using application load balancers can protect Ignition, create redundancy, and scale performance. Any number of identically configured Gateways may be used to **scale out**. Configure the load balancer to favor persistent connections (“sticky sessions”).

Remote providers allow access to data. Consider “read only” Gateway Network connections if needed.

Stateful Services

Ignition I/O Gateways are used for machine-to-machine communication and are usually segmented from Internet connections and user remote access. These Gateways host tag systems, PLC connections, database connections, historians, etc, which are considered to be “stateful”. Ignition I/O Gateways are best protected with **Ignition redundancy** or redundant systems implemented below Ignition. End users should not need to communicate directly with I/O Gateways.

Ignition I/O Gateways should be scaled out by adding additional Gateways. I/O gateways should host distinct content from each other. For example, “Gateway A” might connect to PLC 1 and PLC2, while “Gateway B” connects to PLC3. Both support Ignition redundancy.

Scaling is often separated by geographic location or process function. Consider using **Ignition Edge** Gateways close to the data source. Utilizing **Store and Forward** from Edge Gateways to a central Gateway or database mitigates the effects of a network outage.

New in this Version

Over the course of development, naturally there are changes and additions to the Ignition software. This page highlights any new functionality or modified behavior, but is not meant as a complete resource for new features. You can find more about these items by following the links on this page.



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What's New in 8.1

[Watch the video](#)

Determining Your Current Version

The current version of Ignition can be viewed by visiting the Overview page under the Status section of the Gateway.

1. Navigate to the Gateway's Web Interface.
2. Click on the Status tab on the left side of the screen
3. When asked to sign in, do so.
4. Locate the Version on the Overview page.

Ignition

Home | Status | Config

SYSTEMS

- Overview
- Performance
- Alarm Pipelines
- Gateway Scripts
- Modules
- Redundancy
- Reports
- SFCs
- Voice Alarming
- Tags
- Transaction Groups

CONNECTIONS

- Databases
- Designers
- Devices
- Gateway Network
- Store & Forward
- OPC Connections
- Perspective Sessions
- Vision Clients

Status > Systems > Overview

Trial Mode 1:58:36 We're glad you're test driving our software. Have fun.

Architecture

Gateway | Ignition-e0a2f4921263

Version: 8.1.25 (b2023021409)
License: trial
Uptime: 2 minutes

0% cpu
233 mb

No Redundancy
Add a redundant backup gateway to protect your system from downtime caused by failures.

No Gateway Network
Multiply the power of your Ignition Gateways by combining them into an enterprise network. Streamline the administration, monitoring, deployment, and commissioning process into one central location.

Connections

Databases
0 / 0 connected

Designer Sessions
0 open

Upgrading Ignition

Upgrading Ignition is easy, but there are a few things we recommend to ensure everything goes smoothly.

See the [Installing and Upgrading](#) page for a complete guide.

New Ignition Perspective Mobile App Features

This section is devoted to new features introduced to the [Ignition Perspective Mobile App](#). New versions of the app are released separately from new Ignition versions, so notable changes to the app will be listed in this section.

Ignition Perspective Mobile App Changelog

Updates for version 1.0.10

General

- Improved logging around DeepLinks.
- Improved backwards compatibility and error handling when interacting with the WebView.
- Improved memory leak notifications and tests.

- Updated barcode scanning to align with device orientation and ensure more accurate barcode captures.
- Updated the logs to maintain a 1MB file size between Sessions.
- Added support to automatically upgrade the Perspective Mobile Demo project to the current version.
- Fixed issues associated with SAML sign in for Offline mode.

Android

- Added support for 16KB page size devices.
- Migrated builds from KAPT to KSP, and updated AndroidX Room from 2.4.3 to 2.7.2 and Dagger2 from 2.28.3 to 2.57.1.
- Improved offline submission processes by collating results into a single notification and displaying the submission queue filter on a new page instead of a popup.
- Fixed an issue where docked Perspective views would sometimes scroll after unlocking the device.
- Updated the minimum supported version of Android to version 8.
- Fixed an issue where the Identity Provider's Remember Me option did not behave as expected.
- Upgraded Firebase from 27.0.0 to 33.16.0 to eliminate a protobuf-javalite vulnerability.

iOS

- Updated SSL certificate instructions to align with supported iOS versions.
- Fixed an issue where iOS camera previews could be opened in a windowed view.
- Added support for handling DeepLinks.
- Improved iBeacon filtering on iOS.

Updates for version 1.0.9

General

- Updated with build fixes, improvements, and modernizations.

Android

- Added support for Offline projects and Offline form submission.

iOS

- Upgraded minimum supported iOS version to iOS 16.
- Updated dependencies for iOS Privacy Manifest Inclusions.

- Added support for Offline projects and Offline form submission.

Updates for version 1.0.8

General

- Updated error handling for Gateway address fields and parsing.
- Fixed an issue preventing redundant Gateways with module mismatches from being added to the Ignition Perspective App.
- Added support for the following Eddystone formats: UID, EID, URL, Plain TLM, and Encrypted TLM. BLE Beacon UUID and MAC address are also now included at the new address key, if available.
- Added support for the insecure Boolean query arg: If set to true, HTTP will be preferred over HTTPS.

iOS

- Added an additional iOS AppConfig Boolean restriction of `internal_webview_auth` to keep authentication flows within a webview for external IDPs. Note that this should not be used unless it is the only way to perform auth.

Updates for version 1.0.7

General

- Fixed an issue so that view permissions are now properly reflected upon login.

Android

- Accelerometer actions now return values at the requested rate instead of only once.

iOS

- Fixed a `system.perspective.download` issue to allow downloads regardless of the port a Gateway is using.
- Added a new iOS Restriction `ephemeral_auth_sessions` and relaxed the requirement of using Safari for authentication when using Single App mode or guided access on iOS.
- Added landscape orientation support for barcode scanning.

Updates for version 1.0.6

General

- DeepLinks will now always attempt connecting over HTTPS first when launching Perspective apps.

Android

- Fixed an issue with Bluetooth scanning permission requests.

iOS

- Fixed an issue with Accelerometer usage crashing the mobile app.
- Fixed an issue with Perspective barcode events not being processed while the Accelerometer is enabled. Simultaneous Accelerometer actions and barcode scanning now works as expected.

Updates for version 1.0.5.1

Android

- Fixed an issue with NFC scanning on Android versions 12 and 13

Updates for version 1.0.5

General

- Improved error handling from shared library code.

Android

- Minor Library compatibility updated for Android 13

iOS

- Updated back swipe gestures to behave like the Back navigation action.
- Improved handling of Gateway status discovery and app launches for Gateways over poor network connections.
- Included additional privacy info keys for compliance.

Updates for version 1.0.4

General

- Added third party dependency attribution.
- Added support for front camera barcode scanning. In addition, the Scan Barcode Action now supports specifying either the front or back camera as the default.

- Updated various third party dependencies.

iOS

- Users can now click outside of the login panel on iPads.
- Added support for EMM, which conforms to the AppConfig standard. An AppConfig compatible specification document is available in under the [Extra Materials](#) page of the Inductive Automation website.

Updates for version 1.0.3

Android

- Geolocation tracking in the mobile apps has been improved and a new accuracy setting of 'HIGH' has been added which is accurate up to about 3 meters
- Pinch and zoom functionality for running perspective sessions fixed on Android

iOS

- Geolocation tracking in the mobile apps has been improved and a new accuracy setting of 'HIGH' has been added which is accurate up to about 3 meters

Updates for version 1.0.2

- The [system.perspective.download](#) function now prompts the app to save the target file locally (requires Ignition 8.1.14)

Updates for version 1.0

- Fixed several issues that could cause the app to crash.
- Fixed an issue that caused views to resize when an onscreen keyboard is displayed.
- The mobile app will now prevents swipes from causing a refresh if [session.device.pullToRefresh](#) is disabled.

Updates for version 0.98

- Added support for scanning inverse barcodes. Corresponds with Ignition 8.1.3, which added an option to the [Scan Barcode Action](#) that can limit light or dark background.
- In a Perspective [Barcode Scanned](#) event script, the scanned barcode type is now returned via the barcodeType property.

Updates for version 0.97.2

- Fixed an issue with the app's login screen when using OpenId Connect or SAML authorization on Android.

Updates for version 0.96:

- The app can now be **managed remotely** via Enterprise Mobile Management services.

New Ignition Features

This section is devoted to new features introduced to Ignition. Any pages in this user manual that contain features that were added will be accompanied by a display like this:

New in 8.1.X

New in 8.1.55

Ignition version 8.1.55 contains only **bug fixes**. No new Ignition features were included with this release.

New in 8.1.54

Ignition version 8.1.54 contains only **bug fixes**. No new Ignition features were included with this release.

New in 8.1.53

Ignition version 8.1.53 contains only **bug fixes**. No new Ignition features were included with this release.

New in 8.1.52

Ignition version 8.1.52 contains only **bug fixes**. No new Ignition features were included with this release.

New in 8.1.51

Security

- Updated Netty library to version 4.1.127.

Vision

- Added an **Auto-Redirect** option for Vision Clients using the Identity Provider strategy to skip the login steps when launching.

New in 8.1.50

Embedded Java

- Updated the bundled Java runtime across all scopes to the latest patch release - 17.0.16.

New in 8.1.49

Embedded Java

- Updated the bundled Java runtime across all scopes to the latest patch release - 17.0.15.

New in 8.1.48

Designer

- Added a new JVM argument that works for both **Perspective** and **Vision** to prevent popup messages when running a Designer in Linux Wayland.

System Functions

- Updated the **system.net.sendEmail** function to allow emails if any of the `to`, `cc`, or `bcc` parameters are populated for SMTP Profiles.

New in 8.1.47

Ignition version 8.1.47 only contains a patch for an issue found in 8.1.46.

New in 8.1.46

JxBrowser

- Upgraded JxBrowser to fix an issue with slow Designer and Client startup times and a 7-Zip vulnerability.

Perspective Workstation

- The bundled Perspective Workstation for Mac now only supports Apple Silicon. An alternate build is available for download from inductiveautomation.com/downloads for Intel-based Macs.

New in 8.1.45

Perspective

- Updated the `initialOption` **Table** component property to `activeOption` for improved use with bindings.

Scripting

- Updated logging for Tag Change Script errors to be noted once per minute from when an error occurs to make faults easier to identify.

Designer

- Added the `-Dignition.perspective.designerSaveTimeout` JVM argument to configure the Designer save timeout when working with a Perspective Session.

New in 8.1.44

OPC UA Drivers

- Added an **Octet Strings Are Strings** setting to the DNP3 driver, which allows Model Octet String points to be treated as String instead of ByteString.
- Updated the Mitsubishi TCP driver so that **ZR registers** are now accessible for Q/L series.

JxBrowser

- Upgraded JxBrowser for **Perspective Workstation** and **Web Browser** modules to use Chromium 127.0.6533.73 due to CVE-2023-4863 and CVE-2023-5129. MacOS Sequoia users must upgrade to 8.1.44 at a minimum to avoid experiencing issues accessing these modules within the Designer.

Launchers

- Refactored **Perspective Workstation** to use Swing instead of JavaFX to improve consistency, reliability, and upgradability. This change does remove support for Windows 8, macOS Sierra 10.12, and older operating systems.

Vision

- Added Document as a selectable data type for a Vision component's **custom properties**.

New in 8.1.43

Security

- Added support for authorization servers to use the form_post mechanism for **OIDC**.
- Added support for authorization servers to use the form_post mechanism for **OAuth2 clients**.

Designer

- Added a **Trial Mode display** to the Designer for improved timer status visibility.

Gateway

- Updated the Gateway.PerformanceMonitor **logger** to print out the systemTime, lastSystemTime, and elapsed time when set to TRACE level.
- Added the `-Dignition.redundancy.restoreFileTTL` **Java parameter** to configure the retention time for restore files during backup and redundancy processes.

OPC UA Drivers

- Added **Access Route settings** to the Mitsubishi TCP driver, which allow targeting PLCs in a multi-drop configuration or specific CPU modules in multiple CPU systems .

Perspective

- Improved view path navigation checks to make **dynamic URL** functionality easier to incorporate in projects.

New in 8.1.42

Launchers

- The **launcher file version** now matches the product version in the Launcher Properties.

Modbus

- The Gateway Webpage will now throw an error if attempting to create a **Modbus address** outside the range of 0 to 65,535.

Perspective

- Added an `authnResponse` property to `session.props.auth.idpAttributes`, allowing users to access the SAML Response XML string when the project's IdP is a SAML IdP.
- Added a `className` property to the `styleOptions` of the Map component's geoJSON feature layers, allowing users to dynamically apply CSS class names.

New in 8.1.41

- Ignition version 8.1.41 contains only a patch for an issue found in 8.1.40.

New in 8.1.40

Alarming

- Added a **Backup Local Bind Address** property to the Voice Notification Profile.

Edge

- The **MQTT Transmission module is no longer required** to activate OPC UA server functionality with licensed Edge Gateways.

Gateway

- The **Connections - Gateway Network** Status page now includes a **Version** column, indicating the platform version for connected remote Gateways.

Launchers

- Added new **signature.verification.strength** key options to the Designer and Vision Client Launchers when checking for active Gateways.

OPC UA Drivers

- Added a **zip file import** feature for the Micro800 driver to improve tag filtering.

Perspective

- Added a new **swipeThreshold setting** to the Carousel component, allowing users to set the width that triggers a slide snap.

New in 8.1.39

Alarm Notification

- Added **three new settings** for SMS notification profiles to support Airlink SMS notification on redundant systems.

Driver Updates

- Updated the PostgreSQL JDBC driver that comes bundled with Ignition installation to version 42.7.2 for an extra layer of security due to CVE-2024-1597.

Enterprise Administration Module (EAM)

- Users can now restore Gateway Backups from the Controller's archive during the **Restore Backup Agent Task**.
- Added the ability to specify a Tag Collision Policy when creating **EAM Send Tags Tasks** in both the Designer and Gateway.

OPC UA Drivers

- Added a new **Micro800 driver** to support Allen-Bradley Micro800 series PLCs via Ethernet/IP.
- Added a new setting to disable **automatic time synchronization** on the DNP3 driver.

Perspective

- Seconds and minutes are now available for selection in the **Alarm Journal's** `dateRange.realtime.unit` property dropdown.
- Added a **tabIndex property** to the meta section of a component's Property Editor.
- Added a new **Coalesce binding** property that becomes available when the Bidirectional property is true.

Tags

- A Refresh icon has been added to the **Tag Diagnostics** window to update the displayed information.

New in 8.1.38

Docker

- Two new **environment variables** are now available to help encode Gateway credentials.

Driver Updates

- Updated the PostgreSQL JDBC driver that comes bundled with Ignition installation to version 42.7.1 for an extra layer of security out of an abundance of caution due to CVE-2022-31197.

Gateway

- The **Diagnostic Bundle** now includes the **Gateway Network Diagram** as a JSON file.
- An **export button** to download the Gateway Network Diagram as a JSON file is now available.
- Added a `-Dignition.routes.defaultRequestTimeout=xxxx` system property to allow **route group concurrency timeout** value customization.

Leased Licensing

- **Two Java parameters** have been added to enable session termination configuration.

Perspective

- The **Table** component will now automatically page and scroll to cell updates based on external source changes to the `selectedRow` or `selectedColumn` properties for increased user-visibility.

Platform

- Updated the **auditing actions text** to be more clear.

New in 8.1.37

Designer

- The **top level view** can now be directly selected if a nested child component is already selected and the workspace's grey area is clicked on.
- The "Copy Debug URL" option in the **Designer's Tools Menu** has been removed due to unreliability.
 - Additionally, the DevTools debugger launcher has been improved to be more reliable and responsive.

Device Connections

- The **Omron NJ** driver's Date/Time Offset property now has a configurable range of -24 to 24.

Enterprise Administration

- Added the ability to pause the **Send Tags** Agent Task from the **Running and Scheduled Tasks** tab.

Gateway Network

- **Send and Receive thread counts** are now configurable when creating or editing outgoing connection on a per-connection basis. This change has moved the Send and Receive Threads properties from the Config > Network > Gateway Network Settings - Main Properties to the Outgoing Connections tab.
- Added two more options to the **Metrics Dashboard available metrics** list for tracking and troubleshooting purposes.
 - `gateway-network`
 - `authTokenRecords`

Perspective

- Added an **editingCell** property to the Perspective Table component so the current editing cell can now be specified.

Redundancy

- The "Failover Timeout" property under **Redundancy Settings** has been deprecated.

New in 8.1.36

Alarm Notification Profiles

- Upgraded Apache Guava from v29.0 to v32.0.1 in the **Twilio SMS Notification** module.

New DNP3 Driver

- Ignition now supports a new **DNP3** driver while still supporting the previous driver as the Legacy DNP3 driver.

New in 8.1.35

Ignition version 8.1.35 contains only a patch for an issue found in 8.1.34.

New in 8.1.34

Edge

- Increased the **Ignition Edge Tag History** buffer from 7 days to 35 days.

Gateway

- Added a new `-Dignition.metro.pingexecutor.threads` system property to allow changes to ping threadpool counts and timeouts.

JxBrowser

- Updated JxBrowser for the Perspective Designer and Vision Web Browser module to use Chromium 117.0.5938.62.

Launchers

- Added **signature verification** to the Designer and Vision Client Launchers to verify files and included content.

MongoDB

- Added support for array and document datatypes to be stored to MongoDB.

Platform

- A **Software Bill of Materials** in SPDX 2.2 (JSON) format is now included with Ignition.

Scripting

- Updated Ignition's Jython version from 2.7.2 to 2.7.3.
- Added an includeShelved parameter to the **system.alarm.queryJournal()** scripting function.

Sequential Function Charts (SFC)

- Updated the **chart.state** integer representations to include InitPaused, Suspended, and RedundantInactive states.

Tags

- Added a **Tag Reference Tracker** option through a redesign of the **Tag Diagnostics** window that can now be accessed directly from the Tag Browser.
- Updated **remote Gateway tag writes** to include actors in audit log records.

Vision

- A new **Project Property** allowing users to change the font size of the Vision Client's **Touch Screen Keyboard** is now available.
 - Additionally, you can use `-Dignition.touchscreen.keyboardFontSize` as a **Vision Client Parameter** for local overrides.
- A new **Vision Client Parameter** for the Touch Screen Keyboard Width **Vision Project Property** is now available for local overrides.
- Updated the **Drop Target template menu** to build nested menus for all possible template options.

New in 8.1.33

BACnet

- Added a **new property** that allows users to set the rate at which the BACnet driver will attempt to recreate COV subscriptions.

Designer

- Updated the Designer **script console** to now display scope information and how to trigger autocomplete hints in addition to the Jython version.

EAM

- Added a **new option** for Remote Upgrade tasks that allows users to specify a zip URL connected agents will use to upgrade. This will allow agents to upgrade directly from the URL, instead of requiring the controller to sent upgrade zip files.

- Added a **new option** that allows users to retry EAM tasks that previously failed.

Embedded Java

- The bundled Java version for Ignition has been upgraded from Java 11 to Java 17. It is recommended to check Java 17 compatibility with installed JDBC drivers and third party modules in case modifications are needed.

Gateway

- Added two new **Ignition system properties** to allow Perspective session failover redirect timing customization:
 - `-Dperspective.client.websocketChannel.maxIdleTimeMs`
 - `-Dperspective.client.websocketChannel.idleCheckIntervalMs`

Perspective

- Added a new **Google Map** component that allows scriptable interactions and layers.

Tags

- **Array Tag types** will now accept JSON array values written to it.
- Updated the **system.tag.configure** function so now dataset tags keep structure when editing without the need to specify datatype.

New in 8.1.32

Perspective

- Improved x-axis zooming and panning functions for the **Power Chart** and **Time Series Chart** components.
- The Breakpoint Container can now be configured to break **using height dimensions** in addition to width.
- The Tag Browse Tree component now has a **toggleable filter**, allowing users to search for Tags within the component.

Scripting

- Added **system.bacnet.writeRawMultiple()** and **system.bacnet.readRawMultiple()** functions that allow read/write requests for multiple property combinations in a single request.
- The **system.bacnet.writeRaw()** and **system.bacnet.writeRawMultiple()** functions' value parameter will now accept an Encodable, allowing writes to vendor-specific objects and properties that the driver may not have explicit support for.

Tags

- **Document data types** for tags will now accept PyDictionary values written to it.
- **Value Changed events** will now only be triggered when the tag value changes, and any changes to the tag quality and timestamp will be ignored.

New in 8.1.31

Alarm Notification Profile

- Added a new property to allow users to specify a **Local Address** for **Twilio SMS Notification**.

BACnet

- The BACnet local device **bind address** setting is now 0.0.0.0 by default.

EAM

- The **EAM Send Tags task** will now use the **Service Security** Tag editing permissions instead of the local Tag provider's permissions.

Mitsubishi TCP Driver

- Added **MELSEC-F series** support for the Mitsubishi Driver.
- Added a **new data type** so that a wstring data type is now used for Unicode characters and the string data type is used for ASCII characters.

Redundancy

- Added a new property that, when toggled, causes the redundancy system to compare active uptimes between the Master and Backup nodes. The system will then use the data from the

Gateway with the higher active uptime.

New in 8.1.30

Ignition version 8.1.30 contains only a patch for an issue found in 8.1.29.

New in 8.1.29

Alarm Notification Profile

- Added a new property to allow users to specify the `From Address` in **Simple One-way Email Notification Profiles**.

EAM

- The EAM timeout when sending large files through a proxy Gateway is now 60 minutes. A new **system property** has also been added for further adjustments to this timeout value.

Gateway

- Users who have Status webpage access but not Config webpage access can now view **Running Scripts** without the ability to terminate them.

Logging

- Logging for Tag History values in pre-processed partition tables has been improved to now include:
 - The entry value
 - The exit value
 - Min value
 - Max value
 - Direct average

Perspective

- The Embedded View component path property now includes an **Open View** option for direct navigation when a path is present.

Reporting

- The **Report Image** component now converts unsupported color space images so that they can still render properly.

Scripting

- **system.db.runNamedQuery()** now returns results as a PyDataset. This change is backwards compatible.
- **system.opcua.callMethod()** now also accepts lists as a function argument, negating the need to translate lists to arrays beforehand.
- **system.roster.getRoster()** now allows a getDescription() function that accesses the Description field of the specified roster.

Siemens

- Support for Siemens devices has been expanded to now include LREAL, LINT, and DateTime data types. See the **Siemens page** for more information on which devices support each data type.

New in 8.1.28

Designer

- Expanded the **Tag Report Tool** by adding "Or" operator functionality. Three system functions are also able to use the "Or" operator:
 - **system.alarm.queryJournal()**
 - **system.alarm.queryStatus()**
 - **system.tag.query()**
- A DateTime picker is now available when setting a Named Query's DateTime parameter's value in the **Testing tab**.

Drivers

- The **Logix driver** now supports the following datatypes:
 - DT
 - LDT
 - LTIME

- TIME
- TIME32
- A new **Mitsubishi TCP driver** has been added to support iQ-R, iQ-F, Q, and L devices using MELSEC protocol.
- The Path and Name terminology on the **DNP3**, **Omron FINS**, and **Omron NJ** addressing pages on the Gateway have been changed to Browse Path and Browse Name, respectively.

EAM

- Cron Expressions that start with the "/", "-", or "," characters are no longer considered valid when scheduling **EAM Agent Tasks**.
- A new property called Max Concurrent Agents is now available when creating an **Agent Send Project** or **Agent Send Project Resources Task**.

Gateway

- Added -Dignition.smtp.sendpartial to allow users to define send behavior in instances when invalid notification emails are provided.

JxBrowser

- Updated JxBrowser for the Perspective Designer and Vision Web Browser module to use Chromium 108.0.5359.215.

Launcher

- The last selected List or Card view will now remain the Launcher view selection when next opened, instead of defaulting to the Card view.

Perspective

- A new Request Print action, which can print the contents of the page, view, or component, is now available to use as a **Component Event** or a **callable component method**.
- A new **backgroundSize** property has been added to the Background Menu of the Style Editor to allow users to set the size of the background image.

Reporting

- Additional properties and scripting functions for the **Pie Chart component** are now available.
 - Users can now toggle the Pie Chart's shadow using the `Show Chart Shadow` property.

- Users can now use the `configureChart` hook in the Pie Chart's scripting window.

Scripting

- `system.util.jsonEncode()` will now return values as floats instead of strings when encoding BigDecimal Java types.
- Added `system.project.requestScan` to request a manual scan of the projects directory in order to refresh projects and their resources.
- Added `system.vision.getKeyboardLayouts` to return the list of keyboard layouts available on the current system.
- Added **MongoDB** scripting functions to interact with MongoDB Cloud Connector.

Tags

- New **System Tags** describing information about the Gateway's **Leased License** are now available.

New in 8.1.27

Designer

- Added a button labeled "This" for convenient insertion of the variable into **named query binding parameters**.

Gateway

- The default Gateway **auto-backup** is now set to 60 minutes instead of 2 minutes.
- Added three new **Ignition system properties**:
 - `-Dignition.gateway.connectTimeout`: The maximum amount of time to wait for connections to the Gateway to be established.
 - `-Dignition.gateway.readTimeout`: The maximum amount of time for socket connection to the Gateway to remain open.
 - `-Dignition.gateway.opcBrowseTimeout`: Maximum amount of time to wait for the response to a request.
- Added a Jetty server dump to the **Gateway diagnostics bundle**.
- Added **two new system properties**: `-Dignition.jxBrowser.userDataDir.browser` and `-Dignition.jxBrowser.userDataDir.perspective`. These replace the deprecated

`ignition.jxBrowser.userDataDir` property and offer improved control and separation of user data directories.

Identity Providers

- Added a new **User Info HTTP Request Method** when configuring Identity Providers to allow POST or GET selection.

OPC UA

- Updated the OPC UA module's implementation of the **Eclipse Milo library** from 0.6.3 to 0.6.9.

Perspective

- The **Text Area** and **Text Field** components now have a spellcheck property.

Tags

- OPC UA Clients can now **attempt to write to exposed Tags** which include a StatusCode.
- The StatusCode will be converted to its QualityCode equivalent.
- The write value is passed to the Tag system as a QualifiedValue
- A QualifiedValue's corresponding StatusCode will now be included when sending a **system.opc.writeValue**'s DataValue to the target server.

User Sources

- Added a new **User Source main property** to enable/disable the User Source profile.

New in 8.1.26

Designer

- The Delete option in the Project Browser right-click menu for **inherited projects** overridden resources has been replaced with Discard Overrides. Additionally, inherited Named Queries can now be opened as read-only.
- Holding Alt + Shift while clicking on a Perspective component now enables deep selection.
- Deep selection now enables inline editing for the **Button**, **Label**, **Checkbox**, or **Toggle Switch** components.

- Holding Ctrl + Shift while clicking now allows you to [cycle through components](#) in a Z-order stack in Perspective's Designer Interface.

Docker

- The [default user for Docker Image](#) has been updated from the root user to a standard ignition user.
 - Users upgrading from version 8.1.25 or prior may need to follow [User Migration steps](#) to prevent file permission errors.

Embedded Java

Updated the bundled Java runtime across all scopes to the latest patch release - 11.0.18.

Gateway Network

- A [Description](#) can now be entered for Outgoing Connections to detail how the connection is used. This description will be displayed on the Config > Network > Gateway Network Settings > Outgoing Connections page, but not sent to other Gateways.
- User Source [password requirements are now listed](#) on the Add/Edit User page and the Password Reset page.

Perspective

- Project Properties now includes a [Symbols](#) section that allows users to edit built-in states and create custom states to apply to Perspective symbol components.

Vision

- Setting a Vision Client to read-only mode will now allow writing to [Vision Client Tags](#).

New in 8.1.25

Designer

- Pasting copied values from the [Database Query Browser](#) will now paste in an RFC 2339 compatible local datetime format.
 - Additionally, using the `shift` key while copying will copy the values in a tab-separated format ideal for pasting into spreadsheet tools such as Microsoft Excel.

- Tooltips are now displayed with the full resource path when hovering over the bottom tab bar for all tabbed resource workspaces, such as Perspective Views, Named Queries, Reports, and Web Dev.

EAM

- A new property called **Max Concurrent Backups** is now available when creating an Agent Collect Backup Task.

Embedded Java

- Updated the bundled Java runtime across all scopes to the latest patch release - 11.0.17.

Gateway Network

- A **Gateway Network Diagram** visualizing your Gateway Network is now available and accessible on the Gateway webpage's Status page > Connections > Gateway Network > Live Diagram.

OPC UA Drivers

- A new **IEC 61850 driver** has been added to support IEC 61850 devices using MMS protocol. This driver is supported for Windows and Linux x64 OSs only (not Mac or ARM).
- Modbus RTU driver now has a **connectivity setting** to enable RS-485 mode for the Modbus RTU driver.

Perspective

- A **new property called disabledStyle** is now available for Perspective One-Shot Buttons. This style will be used when the One-Shot Button component is disabled.
- A new object property called **contextMenu** is now available under component meta properties. If enabled, a menu will appear when users right-click on the component.
- **nullFormat table and column properties** are now available for Table components to format how null values will display.

Scripting

- Added multiple **IEC 61850 scripting functions** to interact with IEC 61850 devices.

Security

- The Perspective Permissions config tree now has visual cues when a security level that no longer exists is selected in the **Project Property**, **View Edit Permissions**, **Event Actions**, and **Tag Editor > Security** windows.

Tags

- Time units are now displayed in the **Tag Editor** and **Tag Group Editor**.
- Derived and Reference Tag Paths can no longer use wildcard characters, A tooltip indicating this update has also been implemented.

User Sources

- **Two new settings** allowing for badge-based authentication for non-hybrid Active Directory User Sources are now available.
- User Source main Schedule Restricted property now takes individual user Schedule Modifications into account to deny user login access attempts made outside active hours.

Vision

- Users can now **choose to serialize** Vision Windows, Templates, and Template Drop Target configurations in binary or plain text XML.
- An **onShelve extension function** is now available for the Alarm Status Table component.

New in 8.1.24

Designer

- The Vision Designer Interface now **allows users to use selective Edit Menu actions** for exposed Vision component properties.
- Certain actions from the Edit Menu, such as copying, are now available to use in the Designer's **Output Console**.

Identity Providers

- A special auth token is now generated with the session on the Gateway and is saved in the Designer and Vision Client instance memory after authenticating with an IdP. This will improve Designer/Vision Client **connection recovery**.

Named Queries

- Switching to another tab from the Authoring tab in the Designer will now **automatically commit** any changes to the Named Query's parameters.

Perspective

- Updated the **Map component** delta and snap property tooltips to address component function confusion.
- Added a penNamePathDepth config option to the **Power Chart component** that allows users to choose the tag folder depth to include in the pen name.

Security

- **OAuth 2.0 Clients** are now available for Email Profiles.
 - **OAuth2 Email Profiles** can be set up on the Gateway Webpage > Config > Networking > Email Settings.
 - **OAuth2 Clients** can be set up on the Gateway Webpage > Config > Security > OAuth2 Clients.

TCP Driver

- Added an advanced properties Write Timeout setting to the TCP Driver.

User Sources

- Added a new advanced property to the Active Directory, AD/Database Hybrid, and AD/Internal Hybrid that determines the application of a username's prefix and suffix to the Gateway username before a bind is attempted. This option is checked by default on upgrade to match the behavior before upgrade.
- Removed strict validation on all three AD user source profile types for Gateway username settings so that special characters are allowed.

Vision

- Vision Clients have a new **Update Mode** called "None", which will defer updates to the Vision Client project until the project is restarted, or updated through scripting. New companion features, which are intended to be used in tandem with this Update Mode, have also been added:
 - A new Vision Client System Tag called **ProjectUpdateAvailable**
 - A new system function called **system.vision.updateProject()**

New in 8.1.23

Designer

- Added the **UDT Hierarchy Tool**, which displays the relationships between connected UDT definitions and instances by showing inheritance, overrides of inherited properties, and instances directly related to selected definitions.

Docker

- Setting a new **environment variable** called "DISABLE_QUICKSTART" to true will disable the Quick Start project prompt after the Gateway has initialized.

Exchange

- Added an updated error message for failed Exchange resource import attempts. When attempting to import an Exchange resource as a project or a project resource, the new error message guides users to the correct import location on the Gateway.

Gateway

- Added three new **Ignition system properties**:
 - `-Dignition.skipConfigDbVacuum` can be set to true to skip reclaiming unused disk space in the internal database upon Gateway startup.
 - `-Dignition.tags.cleanupLegacyTagTables` can be set to true to clean up old 7.X.X SQLTAG tables in the internal database upon Gateway startup.
 - `-Dignition.projects.skipProjectRecordTableCleanup` can be set to true to skip cleanup of old 7.X.X project tables in the internal database upon Gateway startup.
- Users with Config-level permissions can now terminate Perspective sessions from the Gateway **Perspective Sessions page**.

Identity Providers

- Users can now reset their passwords through the **internal IdP** when their passwords have expired.
- Added a Copy to Clipboard button to the redirect URI/ACS URI box to make providing the URI to an IdP easier when creating a new **OpenID 1.0 Identity Provider** on the Gateway.

Perspective

- The **Time Series Chart** component now has a relative weight property to customize the amount of space plots use in the chart when two or more plots are included.

Store and Forward

- Store and Forward functionality is now available for **remote Audit Profiles** and **remote Alarm Journals**.

New in 8.1.22

EAM

- A **status message will now appear** when performing an "Apply Files" action during Agent Recovery that indicates that the requested action is in progress. The "Apply Files" button will also be greyed out during this process, preventing it from being clicked multiple times.

Gateway

- The **Gateway Network Status page** has been modified to display service method names for outgoing Remote Procedure Calls (RPC). Previously, outgoing RPCs would be displayed as `Call Result:Services/Invocation`.
- OS restrictions preventing users from deleting old Gateway backups (that are part of Scheduled Backups) will now also be logged to the Gateway webpage > Diagnostics > Logs.
- The Long Wait Queue timeout and Proxy Queue timeout can be adjusted for slower connections. By default, the timeouts are 60 minutes.

Installers

- A **new command line installation argument** named `autoStart`, which automatically starts the Gateway after installing or upgrading, is now available to use.

Vision

- The opacity property has been removed from the Root Container, Group, and Template Style Customizers.

Perspective

- A new **convert to drawing** function is now available for select Perspective SVG-based components, including:
 - Cylindrical Tank
 - Icon
 - Linear Scale
 - Moving Analog Indicator
 - Sparkline
 - Thermometer
 - All Symbols, such as:
 - Motor
 - Pump
 - Sensor
 - Valve
 - Vessel
 - Pipes in Coordinate Containers
- The prefix `ia_` is now reserved for predefined Style Classes that are built into Ignition, and should no longer be used in naming conventions for user-created Style Classes. Using the `ia_` prefix may result in unintended behavior.
- An Advanced Stylesheet resource is now available to enable from the Styles folder menu.
- After creating an initial View, all New View pop-ups will now default to the last used container type instead of defaulting to the coordinate container.
- The **Perspective Table component** can now have filters applied on a column-by-column basis. Filtering properties are located under the "column" property.
- Added the `onClickEvent` Component Event to the **Equipment Schedule**.

Redundancy

- A **new property** that allows users to specify a length of time the Redundancy Sync Task takes to complete before it times out is now available.

Scripting

- The **system.util.setLocale** system function now allows `java.util.Locale` objects to be passed in as parameters.
- Added a multitude of mime type mappings to support various attachment file formats when sending emails via the **system.net.sendEmail** system function. Additional/override values can be

specified as mime-mappings in the web.xml file.

- Added `system.print.getDefaultPrinterName` and `system.print.getPrinterNames` functions to obtain the name of the local default printer or a list of available local printers.

New in 8.1.21

Designer

- The Open/Create a project screen of the Designer Launcher will now show information about the Gateway it is connected to.
- Users now have a "rename" option when right-clicking on a Vision component in the Designer's Project Browser.
- Users can now rename selected components and selected nodes in the Project Browser using the "Rename" menu item in the Designer's Edit menu. Users can alternatively rename components and nodes using the F2 shortcut.
- Added several improvements to the **Tag Report Tool**:
 - Added option to Include UDT Members and/or UDT Definitions in search results.
 - Added Overrides property to report columns that lists all overridden properties on a Tag.
 - Property filter for Value will now query against the actual value and not the Qualified Value.
 - Added Not Like property filter operator.
 - Column sizes are now persisted for saved searches.
 - Added Timestamp property for filtering and reporting.
 - Folders and UDTs will no longer return with Bad_Uncertain in filters.
- Added new icons to the **Project Browser** for opened templates and windows. Additionally, when templates or windows are duplicated, they will be opened by default.

Edge

- The Alarming section of an Edge Gateway's Config page now has "General" alarm settings option, similar to a standard Ignition Gateway.

Expressions

- The `toHex` expression function has been updated to accept Color in addition to Integer.

Gateway

- The Gateway's Status page now has an option to **export diagnostic information**. The downloaded diagnostic bundle includes the following items:
 - Gateway Information
 - Thread dump
 - Wrapper log file(s)
 - System log IDB
 - Metrics IDB
- Memory dump (only included if the memory dump property is true in Ignition's **system properties**)

Launchers

- The following applications can now be **downloaded and installed** using `.msi` installers on Windows machines:
 - Designer Launcher
 - Vision Client Launcher
 - Perspective Workstation
- You can now **return the version numbers** of the Vision Client Launcher, Perspective Workstation, and Designer Launcher using your operating system's terminal (PowerShell for Windows).

Logging

- The `system_logs.idb` file now can be pruned according to configurable properties in Ignition's **logback.xml file**.

Perspective

- The Perspective Map component has a **new rotate property** for map markers.

Redundancy

- The **Redundancy Status page** has been overhauled, now showing a different layout and new metrics. Some features that are different include:
 - A new system event that will log to a new table whenever a redundancy full sync is required.
 - A gauge that indicates how long the node has been active for.
 - A new table that replaced the Runtime Updates Queue graph.

Store and Forward

- **Two disk cache options** have been added to the UI at the Gateway's Config > Databases > Store and Forward:
 - Archive Disk Cache - archives the current disk cache to a folder in the Ignition installation directory, making it available to load later. Current disk cache will then be cleared.
 - Load Disk Cache - loads an archived disk cache, overwriting the current disk cache.

System Functions

- Three new system functions have been added:
 - **system.roster.getRoster()**
 - **system.roster.getRosterNames()**
 - **system.util.getModules()**

Vision

- The "Button Border" and "Other Border" border styles have been removed.
- Added a new **Vision permission** "Tag History" that allows restricting tag history functionality on a per-role basis.

New in 8.1.20

Device Connections

- The Modbus RTU driver no longer requires the Serial Support Gateway module to function.

Docker

- Changes to environment variables `IGNITION_LICENSE_KEY` and `IGNITION_ACTIVATION_TOKEN`, when supplied, will now update the leased activation license config after initial commissioning. Previously, they would only be absorbed if an existing leased activation configuration was not present.

Perspective

- Perspective sessions now support a new feature through **Gateway settings** called **Co-Branding**, which allows users to customize the look and feel of the following Perspective sections:
 - Perspective Identity Provider login screen

- Perspective Session loading screen
- Perspective Session terminal screen
- Perspective Session App Bar
- Perspective Session About popup
- In addition to new Gateway settings, new **Session Properties** have been added to aid in co-branding Perspective Sessions.
- Added a new property to the **Tab container** which allows individual tabs to be disabled/enabled.

Scripting

- An OPCBrowseElement's server node ID can now be obtained using the getNodeId method call on the **system.opc.browseServer** function.

New in 8.1.19

Designer

- Expanded the concept of 'resource documentation' to apply to all resources. Right click any resource in the project browse tree to edit the documentation describing that resource. Additionally, hovering over a resource with documentation will display the documentation in a tooltip.
- Added the **Tag Report Tool**, which allows users to search for tags by multiple criteria, including Tag Path, Quality, Type, Traits, and values on specific Properties.

EAM

- Added **Retention Policies** to EAM Collect Backup Tasks, including:
 - Maximum Retention Count
 - Maximum Retention Age
 - Maximum Retention Age Time Unit

Gateway

- Attempting to rename the Gateway System Name from Gateway Web Interface → Config → System → Gateway Settings will now prompt a warning to appear.

Launcher Settings

- The Designer Launcher, Vision Client Launcher, Designers, Vision Clients, and Perspective Workstation can now use **OS Trust Stores other than the Java internal cacert**.

Perspective

- Added textAlign prop to the **Dropdown component**, which aligns the value(s) and/or placeholder text displayed within the dropdown.

Redundancy

- Backup Gateways now **drop their own data** in favor of the Master Gateway's data if there are data conflicts after redundancy has been reestablished.

Reporting

- Removed the unsupported "Procedure" tab from the **query builder's** "Add New Object" window. Added a "URL" property to **components in the Reporting Module**, which allows for hyperlinks and internal report navigation.

Scripting

- Added a new dropdown menu in the Project Library's scripts that will allow users to choose between the Designer, Gateway, none, or all to populate autocomplete hints.
- **Autocomplete hints and lists of available functions and packages** are now available for code other than Ignition's built-in system functions.
- Added a new system function, **system.tag.query**, that replicates the function of the new **Tag Report Tool**.
- Added a new scripting method **system.perspective.alterDock** and complementary **Alter Dock** action event. This will allow users to alter the configuration of a dock on the fly by supplying the dock's ID and the desired configuration.

Transaction Groups

- Transaction Groups will now use **timestamps instead of the row index** the record was inserted at when pruning.

Vision

- The **Tree View component's** "Default Node Selected Background" property now works as expected. Also added two new properties called "Selection Fill Color" and "Full Width Selection" to use with the Tree View component.

New in 8.1.18

Alarm Notification Profiles

- The **Retry Delay and Max Queued Alarm Transitions properties** will now use the highest respective value(s) if there are multiple Remote Gateway Notification Profiles targeting the same remote Gateway.

BACnet

- Added the **system.bacnet.readRaw** and **system.bacnet.writeRaw** scripting functions which allows any object/property combination to be read/written. Because the functions accept and return types used by the underlying BACnet4j library instead of translating to OPC UA and into types supported by tags, it serves as an escape hatch for objects not explicitly supported by the BACnet driver.

Designer

- Hovering over a Tag in the **Tag Browser Tree** will now display the Tag's tooltip if the tooltip exists.
- Added a right click **find and replace** menu option in the Project Browser for views, transaction groups, windows, templates, and named queries.
- Significantly updated and modernized the script editing experience throughout the designer. Quality-of-life improvements include:
 - Parameter completion assistance
 - Contextual tooltips
 - Inline find and replace

EAM

- EAM Controller's save operations time out after 10 seconds by default during the check for sufficient free space in order to save the incoming file. Added a new configurable system property called **ignition.eam.freeSpace.timeout.millis** to allow changes to the timeout value.

Gateway

- Actions on Tags from Perspective scripts are now recorded in the [audit log](#).
- Gateway backup names can now be customized using [various filename patterns](#).

Perspective

- Added an [overlapGap session prop](#) that controls the gap that is rendered when P&ID pipes overlap.
- Added a [.clearUploads\(\) scripting function](#) to the File Upload component.
- Added a `toggleableFilter` prop to the toolbar configuration of the [Alarm Status Table](#) and [Alarm Journal Table](#). When false, the text filter is always open.
- Added a script callable method `refreshData` to the [Alarm Journal Table](#) and [Alarm Status Table](#), that requests that the data of the tables be refreshed.
- Added a "freeRange" modifier (`interaction.panAndZoom.freeRange`) to the "Pan and Zoom" mode for the [Power Chart](#). With this modifier active the pan/zoom actions of a user will directly modify the overall time range of the chart.
- Added the [Split Container](#) and two component events: `minBoundReached` and `maxBoundReached`.

Reporting

- Added a [Bypass Image Cache prop](#) that instructs the Reporting module not to cache any images.

New in 8.1.17

Docker Image

- [Docker Image](#) now supports a new `GATEWAY_MODULES_ENABLED` environment variable that can declare a comma-delimited set of identifiers that will whitelist the set of built-in modules that will remain installed prior to gateway startup. This feature will help with container re-creation events where you want to ensure only a subset of modules remain enabled.
- Docker Image now supports running as non-root user. Use `IGNITION_UID` and `IGNITION_GID` environment variables to set the numeric UID/GID values for the target user to run Ignition as. When set, the entrypoint will automatically update file ownerships for the Ignition installation on startup to match the target user prior to stepping down from root user to launch the gateway.

Driver Updates

- Added support for **BACnet** Elapsed_Active_Time and Time_Of_Active_Time_Reset properties on BinaryInput, BinaryOutput, and BinaryValue objects.
- Upgraded the BACnet library used by Ignition's BACnet driver. This upgrade provides the following benefits:
 - Enables caching of already-discovered devices.
 - Limits concurrent device initialization to prevent overwhelming the network.
 - Debounces global broadcast discovery messages to prevent possible "broadcast storm."
- Refactored TCP Driver to prevent thread contention and added the **Connect Timeout** setting.

EAM

- **EAM Collect Backup** task now times out by default after waiting 60 minutes for the agent to generate the backup, plus another 60 minutes for the agent to transfer the backup to the controller over the Gateway network. Transfer timeout is configurable using system property **ignition.eam.task.collectBackup.transferTimeout**.

Embedded Java

- Updated the bundled Java runtime across all scopes to the latest patch release - 11.0.15.

OPC UA

- The **Ignition OPC UA server**'s max session count is now configurable.

Perspective

- The **Table** component now has two scripting functions: expandSubviews and collapseSubviews.
- When pen data sources change on the **Time Series Chart** component, the zoom level will be reset to its base time range.
- Added 15-minute zoom level to **Equipment Schedule**.
- Text color and font size can now be specified for the info box for the **Power Chart** and **Time Series** components. Also includes a feature where the info box will automatically resize if width is set to auto.

Platform

- Added **audit events** for gateway login and logout.

- Failover to a **redundant node** is now allowed if the nodes have different platform versions, which will allow attached clients to remain connected to at least one node during a redundant pair upgrade.
- Upgrades performed by the installer now fully wait for the backup to complete instead of cancelling at the 30 second mark for updates starting from 8.1.17. The gwcmd utility starting with 8.1.17 now supports a **timeout argument** for backups to allow for very large backup creation.
- Made UI improvements to the following Gateway Pages:
 - Config > Web Server (Included and Excluded Ciphers)
 - Config > Web Server > Create Certificate (Subject Alternative Names, and DNS Names)
 - Config > Identity Providers > OpenID Settings (Scope)
 - Config > Identity Providers > OpenID Settings > JSON Web Key Configuration (Key Operations, and X.509 Certification Chain)
 - Config > Identity Providers > SAML Settings (Signature Verifying Certificates)

Tag Editor

- The **Tag Editor** was redesigned to improve usability. The new Tag Editor now requires fewer clicks and keeps relevant Tag information visible while modifying bindings, alarms, and event scripts. Additional improvements include the following:
 - Only expression bindings now require opening the dialog to change. Tag and Parameter bindings can be edited in-line within the Tag Editor and are not shortened.
 - Sorting in UDT Editor now sorts folders first, then Tags.
 - Users can add Tags in the UDT Editor without having to click the root of the UDT/folder.
 - UDT Parameters now show when they are overridden.
 - The Tag Editor uses the entire width allowed to display content.
 - UDT properties are added in-line to bindings now rather than clearing out the content.
 - Property values are now all left-aligned.
 - The Expression editor now accepts drag and drops from the UDT Editor or Tag Browser.

User Sources

- The SSO Enabled feature on **Active Directory**, **AD Internal Hybrid**, and **AD Database Hybrid** user sources has been forcefully disabled to protect against a potential security vulnerability.

Vision

- Vision Clients with the Identity Provider Authentication Strategy now allow the login title and message to be customized via Vision's **Login Project Properties**.

New in 8.1.16

Docker Image

- **Docker image** entrypoint will no longer forcibly recreate `data/gateway.xml` on each launch, allowing for settings adjustments from the gateway web UI to properly persist without static definition in the container configuration.
- Ignition's Docker Image build is now multi-architecture and supports linux/amd64, linux/arm64, and linux/arm/v7. Users can `docker pull inductiveautomation/ignition` and get an image that automatically matches their system architecture.

Driver Updates

- Upgraded Postgres JDBC driver from 42.2.23 to 42.3.3 due to CVE-2022-21724. Though the vulnerability is not easily exploitable in Ignition, the driver was upgraded as an extra layer of security out of an abundance of caution.
- Fixed an issue where the **BACnet** Out_Of_Service property was Read-Only. This property is now Read/Write to devices that allow it.

EAM

- EAM agent now reports the agent's Perspective session count in a new **system Tag** called Perspective Sessions.

Expressions

- The Tag expression **binEnc() function** now enforces up to 64 max arguments. Note that 32 arguments or fewer will return an Integer and 33 arguments to 64 arguments will return a Long.

Gateway

- Actions on Tags from remote servers are now recorded in the **audit log**.
- Added the ability to copy **Security Level Paths** from the Security Level Details panel.
- Added a new **system property** that allows users to increase the maximum amount of time the Gateway will wait to connect to an internal database.

Identity Providers

- Added a new opt-in feature to **SAML IdPs** for automatically reloading the latest trusted signature verifying certificates and keys from the IdP's metadata XML URL as soon as an authentication response signed using an unknown certificate or key is encountered.

Perspective

- Added an "enabled" property to marker layers on the **Map component**.
- Added range selection to the **Tree** and **Power Chart** components. Range selection is on by default.
- Added a "captureMode" property to the **Barcode Scanner Input** component that allows the user to specify the key event that will trigger the component.
- Added a "hideViewMarkersOnZoom" property to the **Map component** that allows the user to configure whether or not view markers remain visible while zooming.
- Added the **Audio** component.
- Grids are now a configurable option for the **Power Chart**, **Time Series Chart**, and the **Chart Range Selector** for both the Y axes and the time axis. Grids are drawn behind the chart display.
- Auto range Y axes on the **Power Chart** are now constrained to the upper/lower limits of the pen data bound to said axis.
- Added a new **authentication challenge action**, **scripting function**, and **session event** to Perspective in order to better support 21 CFR Part 11 electronic signature requirements.
- Added a new **Tag Browse Tree** component similar to Vision's **Tag Browse Tree** component.

Reporting

- Added binary data (byte arrays) as an allowed **report parameter** datatype.

Scripting

- Added a `version` argument to the **system.net.httpClient()** system function to allow specifying either HTTP_2 or HTTP_1_1 for the HTTP protocol. When omitted, the previous default of HTTP_2 is implied.

Vision

- Added range selection to the **Tree** and the **Tag Browse Tree** components. This can be toggled on/off via a selection mode component property.

- Added the boolean property "rejectUpdatesDuringEdit" to the **Password Field** component, which prevents updates from external sources while the user is editing the field.

New in 8.1.15

Designer

- Added an **Interactive Tag Import** tool to the Tag Browser, which gives users more options to edit and configure Tags on import.

Gateway

- The **Modbus Address Mapping** page now includes the device name in the page header.
- Added a **System Tag** to monitor the Gateway's license activation state.
- The Gateway will ignore changes to any files located within folders with the name ".git", ".svn", or ".hg" when scanning the project directory for changes. This change allows a project to be used as a Git repo. A **new system property** allows users to specify additional folders to ignore.

Perspective

- Added **Pointer events** as supported component events. Pointer events will track touch interactions as well as stylus and pen interactions.
- Changes made to a GeoJSON layer of the **Map** component are now visualized in the map.
- Expanded the style options for GeoJSON feature objects on the **Map** component.
- Added a stopPropagation property to vector shapes and markers on the **Map** component, allowing users to determine how events should propagate between the children of the map component and the parent map component.

Scripting

- Added a **system.user.getUserSources** function that can return the list of all user source profiles configured in the system.
- Changed the **system.alarm.acknowledge** function to now return the list of alarm event ids that were unable to be acknowledged successfully.

New in 8.1.14

Designer

- Updated the Named Query disabled icon in the Project Browser and query selector dialogs.
- Clicking on the Gateway icon in the **Designer status bar** now opens the connected Gateway in a browser.

Designer Launcher

- Added a "Go to Gateway" option to the **Designer Launcher** menu.

Gateway

- The **Project Update** gateway event script now reports which resources were modified during a project save.
- **Gateway Network** Proxying Depth is now configured via the Gateway Configuration Webpage UI. The previous checkbox for "Allow Proxying" has been replaced with the numeric depth count (where ≤ 0 is "disabled" and > 0 is "enabled").
- In order to improve the security and organization and to gain functionality from a more mature and proven certificate model, the **Gateway Network's trusted certificates** are now split into client and server certificates.

Perspective

- Added column configurations for associated data to both the **Alarm Journal Table** and **Alarm Status Table**.
- Added runtime column drag reordering for **Table**, **Alarm Status Table**, and **Alarm Journal Table** components.
- The **Power Chart** now automatically converts Realtime pen tag paths to a historical format.

Reporting

- Ordering of report parameter and data source keys in Key Browser now match ordering in the **Data tab**.

Scripting

- The **system.perspective.download** scripting function now interacts with the mobile apps directly to ensure that download requests function as expected and can be saved to the local device.
- **Scheduled scripts** now use a cached thread pool and per-script execution queues. This facilitates parallel execution of scheduled scripts within a project—useful for both longer running scripts and situations where multiple scripts have the same schedule. A given scheduled script will enqueue and wait for any previous invocations to complete before running again.

Security

- The Gateway Audit Profile will now log user lockout events to the **Audit Log**.

Tags

- Added Color as a valid data type for storage in **Dataset Tags**.

Vision

- Added the ability to change the font and alignment of table headers on both the **Alarm Status Table** and the **Alarm Journal Table**.
- The **Power Table Customizer** can now be opened by double-clicking on the **Power Table** component in the Designer.
- Added color properties to the **Roster Management** component.
- Added a right-click context menu to the **File Explorer** with a refresh option.

New in 8.1.13

Alarm Notification

- Added an **Ignore User Schedules** setting to the Contacts tab on Notification Blocks, allowing the block to ignore restrictions defined by user schedules.

Gateway

- Added a new category of Gateway Settings: **Automatic Thread Dump Settings**. These settings allow an Ignition Gateway to automatically capture a thread dump under certain conditions, making it easier for support to track down high CPU based issues.

- Added a **Metrics Dashboard** page to the Gateway's Settings section. This new page allows users to build customized dashboards that display metrics about the gateway's subsystems.

Perspective

- Added a "visible" property to **pipes**, allowing them to be hidden on demand.
- Added an onPipeClicked component event to **coordinate containers** which triggers when a user clicks on a pipe.
- Added numeric locale formatting to the Y axes and X trace displays for the **Power Chart**, **Time Series Chart**, and the **Chart Range Selector**.
- Added unified selection to the **tag history binding** to be able to browse for both realtime and historical tags.
- Added URL query parameter support to **Pages in Perspective**.

Scripting

- A new historical tag record will now be created (and previous one retired) if a mismatch occurs between a current tag and its previously recorded datatype when using the **system.tag.storeTagHistory** function.

Tags

- Added ParentInstanceName and RootInstanceName built-in **UDT properties**.

Vision

- Added Tag and Property reference helper buttons to the Vision component **Extension Function** and **Custom Method** script editors.

New in 8.1.12

Perspective

- Added new properties to the **Numeric Entry Field** to allow users to toggle the spinner on or off and adjust the increment.
- Added the **Equipment Schedule** component, which can be used to visualize equipment scheduling information.

- Added a "Cache & Share" option to polling tasks and Alarm tables to improve Gateway CPU load caused by many concurrent sessions. This new polling option is utilized by:
 - [Alarm Status Table](#)
 - [Alarm Journal Table](#)
 - [Tag History Bindings](#)
 - [Query Bindings](#)
 - [HTTP Bindings](#)
- Date time values in reports now use the session timezone when viewed from the [Perspective Report Viewer](#).

Reporting

- Added the ability to toggle dividers for individual cells in the [Crosstab](#) and [Simple Table](#) components.

System Properties

- Added [new system properties](#) that allow users to configure how the HTTP Client parses cookies, handles idle HTTP connections, and respects proxy settings.

Designer

- Added the ability to save thread dumps in the diagnostics [Thread Viewer](#) tab.

Vision

- Fixed various rendering issues with the [Dropdown](#) component when in 'Table' mode. Also, added functionality so that if 'Max Table Width' or 'Max Table Height' are negative, the table popup will auto size to fill contents.

Vision Client Launcher

- PNG, SVG, GIF, and JPEG formats are now supported as launch icons for the Vision Client Launcher. The launch icon can be specified in the [client launcher application settings](#) or within the project's [Vision Launching Properties](#).

Docker Image

- Docker image now [redirects KeyStore creation](#) via sym-link, allowing users to preserve the Gateway Network Certificate and SSL configuration across image updates without relying on

additional bind-mounts.

New in 8.1.11

EAM

- The `system.eam` functions now throw exceptions if called from an Agent.
- The `EAM function bindings` only appear in projects hosted on the Controller.

Edge

- The Tag Provider Name property on Edge Gateways has been replaced by a `Tag Provider property`, which can be used to determine which Tag Provider to load on the Edge Gateway.
- Added an "Edit Tag Provider" page to Edge Gateways, allowing you to change some settings on the loaded tag provider, including the name of the provider.

Identity Providers

- Added new settings to `SAML and OIDC provider configurations` specifically for backup gateways, allowing them to use a different set of metadata than their peer gateway.

Perspective

- Added two read-only properties to the `Power Chart` that allow users to view the current zoom level displayed on charts and range brushes.
- Added new style properties to the `Table` component to allow users to apply custom styles to header and footer groups, the selection overlay, and other elements.
- Added a new `textStyle` property to the `Label` component that allows users to configure text overflow options, including displaying text overflow ellipsis.
- Added new properties to the `Power Chart`, `Time Series Chart`, and the Chart Range Selector that allow users to configure the number and format of ticks displayed on the Y Axis.

Scripting

- The `AlarmQueryResult` object returned by `system.alarm.queryJournal` and `system.alarm.queryStatus` now contain instances of `PyAlarmEvent` instead of `AlarmEvent` objects.

New in 8.1.10

Database Connections

- **SQLite database connections** now support relative paths with `${data}` and `${local}` keywords.

Docker Image

- Added **new environmental variables** to the image that can modify Gateway Network and EAM configurations.
- **Gateway arguments** can now be passed to an image on container start.

Perspective

- Added a **session.props.address** property that represents the IP address of the session, as the gateway sees it.
- Added a selection object to the **Pie Chart component** that can enable slice selection, as well as list data about selected slices.
- Added a selection object to the **XY Chart component** that can enable column or bullet selection, as well as list data about the selected data point.
- Added the ability to resize Tag Browser, Pen Table, and Settings Menu panels on the **Power Chart** component.
- Added a tooltip meta property for all components, as well as two new **Component based scripting functions**: `requestTooltip` and `removeTooltip`, which allow the user to configure and handle tooltips from scripting events.
- Added a new **configurable Session Event** for Key Events, which allows users to execute scripts in response to single key or regex pattern matches.
- Added a `filterShelvedAlarm` extension function to the **Alarm Status Table component**, which can be used to filter out shelved alarm events.

Platform

- Thread dumps collected various locations now all use a common JSON format.
- Added several new **expression functions** that interact with qualified values:
 - **isBad()**
 - **isUncertain()**
 - **isError()**

- `isBadOrError()`
- `qualityOf()`
- `timestampOf()`

OPC UA

- Updated the OPC UA module's implementation of the **Eclipse Milo library** from 0.6.1 to 0.6.3.
- Added Master **Application URI and Backup Application URI settings**, which can be used to enable OPC UA redundancy for third-part OPC UA clients.
- Added **MonitoredItemCount** sampling diagnostics node.
- Added **Include Timestamp-Only Changes** OPC UA tag group property.

Security

- Added a **Use Proxy Forwarded Headers** setting to the **Gateway's Web Server** page.
- Added a **Resolve Client Hostnames** setting to the **Gateway's Web Server** page.
- Added a **system parameter** that can restrict the amount of information provided by error messages in the Designer and Vision Clients, which can be used to obscuring potentially sensitive information.

Scripting

- The **system.device.addDevice** function now has a description parameter, allowing the function to set the **description** for the new device.
- JythonHttpClient objects returned by **system.net.httpClient** now have a `setGson()` method that can be used to override JSON serialization behavior on the instance.

Vision

- Added a `getDateAt()` component method to the **Equipment Scheduler component**, allowing event scripts to access a datetime where the mouse interaction took place.
- The **Tag Browse Tree** component now supports additional formats when set to Historical Tag Tree.

New in 8.1.9

Ignition version 8.1.9 contains only a patch for an issue found in 8.1.8.

New in 8.1.8

Alarming

- Database and Internal **Alarm Journal Profiles** now have a setting that will cause the journal to record instances where live alarm events are enabled or disabled.
- The `extraProps` key on **Calculated Roster** users can be used to set arbitrary user properties, such as language and badge.

DNP3

- The DNP3 driver's Aliased Points gateway page received a visual polish pass, bringing it more inline with the other device tag import pages.

Docker Image

- The image now supports **gateway arguments** on container launch, allowing "gateway." entries in the gateway.xml file to be modified.

EAM

- The **Send Tags task** can now target the controller, allowing the task to copy tags from one tag provider on the controller to another provider.

Expressions

- Added **char** and **ordinal** expression functions.
- Significantly expanded support for complex datatypes such as arrays, lists, and JSON objects.

The following features were changed as a result:

- **indexOf**
- **lastIndexOf**
- **sum**
- **stdDev**
- **mean**
- **median**
- **max**
- **min**
- **groupConcat**

- `len`
- `jsonGet`
- `jsonSet`
- Subscript operators can now be used to access specific elements/keys within collection/mapping datatypes.

Identity Providers

- Added a new **project property** that will automatically redirect users to an authentication page if the project requires authentication.
- Added a new **project property** that allows users to configure the message that's displayed when logging out of a Perspective session.

Installers

- During an upgrade, installers will now place more recent versions of the MariaDB and Postgresql **JDBC drivers** in a `jdbc-bundled` directory, located in the installation directory.

Launchers

- The Designer Launcher, Vision Client Launcher, and Perspective Workstation now support gateway addresses using IPv6.

OPC UA

- Added a new system function that can reset device connections: **`system.device.restart`**.
- Added **`system.opcua.addConnection`** and **`system.opcua.removeConnection`** functions, allowing a gateway-scoped script to add or remove OPC UA connections.
- **Regenerating** a Gateway's OPC UA Client certificate or OPC UA Server certificate now allows you to specify how long the certificate lasts. In addition, regenerating OPC UA Server certificates now allows you to specify the DNS names and IP addresses to be included in the Subject Alternate Name (SAN) fields.
- The **`system.opc.browseServer`** function will now include method nodes in the browse results.

OPC UA Drivers

- Several drivers received a new "Local Address" property, that allows you to set the local address a device connection will bind to. The following device connections received the new property:
 - Legacy CompactLogix

- Legacy ControlLogix
 - MicroLogix
 - PLC5
 - SLC
 - Logix
 - TCP
 - DNP3
 - Omron NJ
 - Omron FINS (TCP only)
 - Modbus TCP
 - Modbus RTU over TCP
- The Gateway tag import screen for **Omron device connections** received a UI update.

Perspective

- Items in the **Menu Tree** component now have a `resetOnClick` property, which will cause the component to reset the menu back to its initial state.
- Added a new argument to **`system.perspective.logout`** that allows the function to display a custom logout message.
- Added a **`lastActive session prop`** that represents the last time a user interacted with the session.
- The `source` property on the **Report Viewer component** now has a dropdown, making it easier to set the property to an existing report.
- The `theme` session property now has a dropdown, making it easier to select a theme.
- The **Perspective Alarm Journal Table component** now has **enabled** and **disabled** filter event properties that can be used to show alarm events that were generated by enabling or disabling an alarm.
- Added a **Publish Initial Uncertain Value** option to tag bindings, allowing the binding to disregard the initial uncertain value when a binding starts up (such as when the parent view opens).

Scripting

- Updated Ignition's Jython version from 2.7.1 to 2.7.2.
- The `state` parameter in the **`system.alarm.queryJournal`** function now accepts `enabled` or `disabled` as valid values.

Tags

- Bindings within UDTs that reference nonexistent UDT parameters will now **return a string literal of the parameter reference**.
- The filePath argument for **system.tag.exportTags** is now optional. Omitting the parameter will cause the function to return the tag export as a string instead of a file.
- Reading and writing permissions can now be applied to an entire **standard tag provider**. In addition, tag providers can be set as "read only".
- The "Text" data type is no longer selectable since it's functionally identical to "String". Existing Text type tags will continue to function normally.
- Tags now have CanRead and CanWrite **properties available in the Tag Browser**, which represent whether or not the tag can be read or written to based on the current permission settings.
- Importing a UDT or UDT instance with an Overwrite collision policy will now override the entire definition instead of just members. Meaning, members not included in the import file will be removed.

Tag Historian

- The **system.tag.storeTagHistory** function is no longer deprecated.

Vision

- The **Vision Alarm Journal Table component** now has **Enabled Events** and **Disabled Events** properties that can be used to show alarm events that were generated by enabling or disabling an alarm.
- Added a Text Color property to the **Progress Bar component**.
- The "Border Painted?" property was removed from several components as it conflicts with the "Fill Area" property. The following components were affected:
 - **Button**
 - **One-Shot Button**
 - **Toggle Button**
 - **2 State Toggle**

Web Dev

- The default encoding for **Python Resource** `html`, `json`, and `response` keys was changed from ISO-8859-1 to UTF-8.

New in 8.1.7

Ignition version 8.1.7 contains only **bug fixes**. No new Ignition features were included with this release.

New in 8.1.6

Embedded Java

- Upgraded the version of Java that's included with Ignition from 11.0.10 to 11.0.11.

NOTE

Note that this **version of Java** disables TLS versions 1.0 and 1.1 by default. This could cause issues with older JDBC drivers that don't support newer versions of TLS, resulting in a faulted connection. In these cases it's advised to update the **JDBC driver**. If the database does not natively support TLS versions greater than 1.1, then you may need to check your database vendor's documentation for more information.

Perspective

- The **Map component** has new Custom map controls that can display a view in the corner of the map.
- The **Map component** also has a new **onVectorClicked** component method that triggers when a user clicks on a vector.
- **Properties** for the current window dimensions are now available. These properties are available for binding through the view, and can also be accessed as part of the Page object within scripting context.
- **Perspective Workstation** added a new Fallback Redirect feature. If communication with the Gateway stops, Workstation can open a different application after a specified delay.
- Browser tabs for **Perspective pages** can have custom names now without "- Perspective" appended, or they can use the project title along with "-Perspective".
- The **Table component** now allows sorting on the underlying array values.
- The **Table component** now has a **rows.height** setting that determines the minimum row height.
- Added a **Modify Source View** right-click option when clicking on Embedded Views and Flex Repeaters, providing a quick way to open the source view in the designer.

Gateway Event Scripts

- Added Gateway [Scheduled Script Events](#), which are scripting events that execute at fixed times.

MySQL and MariaDB Driver Update

- Both drivers will now set `rewriteBatchedStatements` to true via the default connection properties on newly installed Ignition systems. This change should result in improved throughput for queries running against the Tag Historian (as well as other areas of Ignition where batching statements is appropriate).

User Sources

- [Database](#), [AD Database Hybrid](#), and [AD Internal Hybrid](#) user sources received new properties that improve login performance when paired with an Ignition Identity Provider.

Device Drivers

- The [Device Connection page](#) on the Gateway's web interface has an updated Device Details page. **Mean Queue Duration** and **Actual Sampling Interval** metrics have been added. Additionally, the Load Factor metric has been replaced by a new **Overload** metric, which provides a better representation of device health. All metrics are also included in diagnostic tags, and are available from the Tag Creator.

Named Queries

- [Named Queries](#) and their metadata are now stored as SQL and JSON files, respectively, on the Gateway's file system.

New in 8.1.5

Perspective

- The tooltips on the [Pie Chart](#) component can now be customized in their content and format with the new `tooltipFormat` property.
- Added the "runWhileHidden" property to the Tabs props of the [Tab Container](#) component allowing the contents of the tab to load when it becomes active and to persist in the background when another tab is selected and becomes active.

- The **Embedded View** and **Flex Repeater** components each have a new `loading.order` property to control loading optimization.

Session Properties

- A new **Session property** `pullToRefresh` was added. If true, swiping down from the top of page and holding for two seconds will refresh the project in the mobile **Perspective App**.

Component Events and Actions

- **Perspective Navigation Actions** can now be set to navigate back or forward using browser history.

Scripting Functions

- Added **`system.perspective.navigateForward`** and **`system.perspective.navigateBack`** scripting methods, which operate similar to a browsers forward and back functions.
- The **`system.perspective.navigate`** function now has a `newTab` parameter, which opens contents in a new tab.

Launchers

- The Designer Name field in the **Designer Launcher** is now required.
- The Vision Client Project field in the **Vision Client Launcher** is now required.

Vision

- A "Bypass Tag History Cache" checkbox was added on **Vision Tag History bindings**, which allows the option for the Tag History cache to be ignored on a per-binding basis.

Tags - User Defined Types (UDTs)

- Added Tag Browser "Create Data Type from Selected" functionality enabling users to create a data type from existing **Tags**.
- As of 8.1.5 it's possible to escape curly braces in an OPC Item Path by using additional curly braces. This applies to both **transaction group OPC Items** and **OPC Tags**.
- Added new capability to view and write directly to **alarm setpoint properties on tags**, as well as the alarm's "enabled" property.

Alarm Journal

- Added a Query Only setting to allow the **Alarm Journal** to opt out of being used for storage.

Gateway Security - Strict Transport Security

- Added a `-Dignition.https.sts.preload` **parameter** that allows websites to tell the browser to only connect using HTTPS.

Scripting Functions

- Added a `includeReportName` parameter for **`system.report.getReportNamesAsDataset`** that when set to `False`, the end of Path does not include the report name.

Identity Providers

- **Security level rules** can now reference the name of the rule as well as the full path to the level with two new objects: `{security-level-name}` and `{security-level-path}`.
- Gave the SAML attribute source an explicit name for use in **User Attribute Mapping**, which can be used in conjunction with built-in objects such as `{attribute-source}`.
- **User attribute mapping** can now make use of XPath syntax to parse XML documents (such as response documents provided by SAML providers).

EAM

- As of release 8.1.5, you can **send projects and project resources** across major Ignition platform versions, for example from release 7.9 to 8.1.

New in 8.1.4

BACNet

- The **BACnet** driver now supports reading and writing null values.
- Configuring a **BACnet Remote Device** now includes a discovery timeout option, where you can customize the length of time initializing the remote device.

Enterprise Administration Module (EAM)

- Added a option in **Agent Tasks** for Send Project, that if selected, forces the task to combine project resources from all inherited projects,

Expression Functions

- Added **typeOf** expression function which Returns the simple name of the Java type.

Gateway

- Added a **Use Condensed Font** gateway setting that will force Designers and Vision Clients on Windows and Linux systems to use a condensed version of the "Dialog" font, which has a similar look to pre-8.0 Vision's Dialog font.

Ignition Maker Edition

- As of 8.1.4, it is now possible to create remote Tag Providers and Tag history providers when the provider source is a **Maker Gateway**.

Perspective

- View parameters available from **Embedded Views** now appear on a dropdown list of parameters in the Property Editor. Template instance parameters. can now be more easily synced within views.
- The **Embedded View**, **Carousel**, **Flex Repeater**, **Accordion**, **View Canvas**, and **Dashboard** components now have new options for view parameters available.
- The **Dashboard** component has a new `pack` property for enabling or disabling widget packing.
- The **Perspective - View Object** has a new `inputBehavior` property, which controls whether object-typed input parameters are merged with their defaults or replace their defaults.
- Added new selection property to the **Alarm Status Table**, called `selection`, which allows the user to configure how many table rows can be selected at a time on both the active and shelved tabs of the alarms displayed on the table.
- The **Radio Group** component has a new property, `radioStyle`, enabling CSS styling including padding, and margins of radios within component.
- The **One-Shot Button** component now accepts numeric, boolean, string, or null for the value and `setValue` properties.
- All CSS properties are now available on **Styles** properties on components.
- Added support for the On-screen Keyboard in **Perspective Workstation**.

Property Change Scripts

- A missedEvents flag has been added to [Perspective Property Change Scripts](#).

Scripting Functions

- Added [system.perspective.getProjectInfo](#) scripting method. This is also available on the [session object](#).

Tag Providers

- [Remote Tag Providers](#) now support annotations.
- [Tag Providers](#) now have an Allow Back-fill Data option where data will be stored to history, but will not be used for alarms, scripts, or subscriptions

New in 8.1.3

Perspective

- The [Scan Barcode](#) action now has an option for specifying the background color of a barcode.
- The [Popup](#) Action now has an option to always open within the bounds of the viewport.
- The [Alarm Journal Table](#) and [Alarm Status Table](#) now support [Localization](#).

Scripting Functions

- [system.perspective.openPopup](#) and [system.perspective.togglePopup](#) now have a viewportBound parameter that enables popups to be opened only within the bounds of the viewport.
- [system.perspective.isAuthorized](#) has a new parameter, sessionId.

Designer Find/Replace Window

- [Web Dev Resources](#) have been added as a search option.

Tag Properties Table

- The Tag Properties table has a new [property](#), Datasource, which defines whether the query is executing a database read or a database write. Important for determining the **value** behavior of the Tag.

Gateway Network

- A new [Gateway Network](#) general setting was added: Websocket Idle Timeout.

Allen-Bradley Logix Driver

- The [Logix driver](#) now has an "Identity Request Frequency" advanced setting that controls the CIP Identity Object read request speed.

Database Audit Log

- Added a Pruning Enabled setting to [Database audit logs](#).

New in 8.1.2

Perspective

- The [Pie Chart](#) component now has settings for a legend and for putting labels inside the pie sections.
- The [Power Chart](#) now has configuration settings that show and hide various pieces of the component's interface, as well as export settings that can determine the date and time format when exporting to CSV.
- Added a "Binding" section to the [right-click menu](#) on component properties. The new section contains items for binding manipulation, such as disabling or removing bindings without needing to open the binding window.
- The [Perspective - Table](#) now offers settings to display a message and an icon if the data source for the table is empty or if the filter for a table returns no data.
- The [Numeric Entry Field](#) now has a containerStyle property.
- Changing the [locale of a Perspective Session](#) can also modify number formatting behavior (e.g., on the [Numeric Entry Field](#) component).
- The `props.interaction.xTrace.infoBox.dataFormat` property on the [Power Chart](#) component can now be set to an empty string, which will effectively disable the built-in `dateFormat` and `timeFormat` properties.
- Many Perspective components now have multiple configurations, called variants, based on options a user might commonly use [See Working with Perspective Components](#).
 - [Perspective - Gauge](#)
 - [Perspective - Pie Chart](#)
 - [Perspective - Simple Gauge](#)

- [Perspective - Time Series Chart](#)
- [Perspective - Coordinate Container](#)
- [Perspective - Flex Container](#)
- [Perspective - Tab Container](#)
- [Perspective - Barcode](#)
- [Perspective - LED Display](#)
- [Perspective - Flex Repeater](#)
- [Perspective - Button](#)
- [Perspective - Checkbox](#)
- [Perspective - DateTime Input](#)
- [Perspective - DateTime Picker](#)
- [Perspective - Dropdown](#)
- [Perspective - Multi-State Button](#)
- [Perspective - Numeric Entry Field](#)
- [Perspective - One-Shot Button](#)
- [Perspective - Radio Group](#)
- [Perspective - Toggle Switch](#)

Designer Property Inheritance

- Project Inheritance is now shown on the [Project Properties](#) screen.

Client Permissions on system.db.execSProcCall

- The Client Permission Restrictions for the [system.db.execSProcCall](#) function have been changed, and can now be restricted by the Legacy Database Access Permission Type.

Commissioning

- Updated the user manual to include preconfiguring a Gateway for [deploying Ignition to another system](#).

Omron FINS - Support XML Tag Import

- The [Omron FINS Driver](#) now supports XML Tag imports from programs such as CX Programmer.

Tag Quality

- Release 8.1.2 includes a new **Tag quality code**, Good_Overload.

Tag Editing Permissions on Edge

- Edge Gateways can now restrict Tag editing permissions.

Tag History Query Syntax System Flag

- Added a new **system flag** that dictates the syntax used by Tag Historian queries.

Alarm Notification Profiles

- The "Throttled Message" setting for Twilio **Notification Blocks** was updated to the more standard term, "Consolidated Message."

Tag Creator

- Added a right-click menu to the **Tag Creator's For Provider** area.

MariaDB Driver

- Updated the MariaDB JDBC driver that comes bundled with Ignition installation to version 2.6.1. This allows new installation to connect to **MySQL 8** databases using a Maria DB connection type.

TCP and UDP Drivers

- Added MessageBytes and WritableBytes (TCP driver only) tags to the **UDP and TCP Drivers**, allowing the drivers to receive messages as binary data instead of strings.

Sequential Function Charts (SFC)

- As of release 8.1.2 you can include a relative path in an **Enclosing Step**.

New in 8.1.1

Designer Find/Replace Window

In 8.1.1, the **Find/Replace** tool received several improvements.

- Named Queries were added as a search option.
- Wildcard characters (* and ?) can be used to search across multiple lines of text.
- A **Select All** check box was added, allowing you to quickly check or uncheck all options in the window.

Perspective

- If a **page configuration** is using a view that does not exist, a **Warning** icon is now displayed.
- Expression Structure Bindings now return direct values instead of qualified value objects. This impacts Transforms as you no longer need to append ".value" to access the value passed to the binding.

Gateway Network - Commissioning

- **Commissioning** can now set the Gateway Network port in addition to the HTTP and HTTPS port.

Gateway Network - Security Settings

- Added a User Inactivity Timeout setting under the **Gateway General Security** section which can be set to the number of minutes that must elapse before expiring a user's Gateway Web interface session to inactivity.

Device Connections

- Added a manual date/time offset setting for the **Omron NJ driver**.

Audit Profiles

- A Retention field has been added to the Gateway **Audit Profile** settings. The value in the field indicates how many days you want audit records kept.

Scripting

- For **system.opc.browseServer**, added a `getDataType()` method to `OPCBrowseElement` and `PYOPCTag` objects.
- Added a new **system.roster.deleteRoster** system function that can delete a roster.

Identity Providers

- As of release 8.1.1, Ignition's 2.0 SP implementation can handle both line-wrapped and non-line-wrapped Base64-encoded **SAML responses**.

User Sources

- **Active Directory**, **AD Database Hybrid**, and **AD Internal Hybrid** user sources gained a new Referral property, allowing the user sources to determine what to do when a referral from Active Directory is encountered.

Tag Browser

- Added the ability to browse OPC devices from within the Tag Editor in order to add OPC nodes to **UDT definitions**.

HASP Module

- The HASP module was removed from all installers.

New in 8.1.0

Perspective Component Updates

- Added **Power Chart** component which collects and displays data based on pens that have been configured on the chart. It is fully customizable in its appearance, from labels, colors, line widths, legend, scroll bars, text styles, and more.
- Added a **Symbols palette** and new components: **Motor**, **Valve**, **Sensor**, **Pump**, and **Vessel**.
- Added **Wrap in Container** option on the Component right-click menu, enabling existing components to be "wrapped" into a container on the same view.
- The "autoplay" property on the **Perspective Video Player** component will now mute the video on initial playback on all environments. Earlier versions of the component only muted autoplay on iOS environments.

- Added the new "filterAlarm" extension function to the [Alarm Journal Table](#).

Perspective Workstation

- [Perspective Workstation](#) is a single application that acts as both a launcher, and desktop “wrapper” for Perspective sessions. Users will be able to configure multiple applications via a home screen, and launch into one of those applications. Perspective Workstation has built-in features to run in Windowed mode and full screen Kiosk mode eliminating any distractions from the underlying operating system.

Perspective Session Events

- Added a new Session Event: [Page Startup](#).

Vision

- Added new scripting function `.setSelectedValues (valueList)` to the [Vision - List](#) component.
- Added a new Welcome screen to each of the Designer Interfaces: [Vision Designer Interface](#), [Alarm Pipeline Designer Interface](#), [Transaction Groups](#), [Named Queries](#), [Scripting](#), [SFC Designer Interface](#), [Web Dev](#), and [Report Designer Interface](#).

Device Connections

- Added a new property to the [Modbus TCP Device](#) called Concurrent Requests which is the number of requests that Ignition will send to the device at the same time.

Installation

- Introduced the [Quick Start Configuration](#), which can be enabled after installation. When enabled, several configurations and resources will be created in the new system automatically.

OPC UA Clients

- A new advanced option, Certificate Validation Enabled, allows you to disable validation of server certificates if needed for troubleshooting. See [OPC UA Client Connection Settings](#).
- A new Certificates page on the Gateway enables you to [download](#) or [regenerate](#) certificates currently running on the Gateway.

Scripting

- For [system.util.getGlobals](#), the globals dictionary will now persist across the lifetime of the JVM, and it's now accessible at `system.util.globals`.
- Added `intervalSeconds` and `rangeSeconds` parameters to [system.tag.queryTagHistory](#).
- Added new functions that can interact with the Tag Historian's new Annotation system: [system.tag.deleteAnnotations](#), [system.tag.queryAnnotations](#), and [system.tag.storeAnnotations](#).

Security

- The Vision module now has the option to use Federated [Identity Providers](#) (IdP), allowing users to authenticate against a trusted third party.
- Security settings have been consolidated onto a new Gateway page, [Gateway General Security Settings](#).
- The Ignition Identity Provider now has options for setting a timeout for Session Inactivity, an expiration time for Sessions, and a Remember Me expiration, which is the number of hours a user will be remembered regardless of if they close their browser or Gateway. See [Configuring Identity Providers](#).

Tag Historian

- Added a new [Historian Simulator](#) that can easily generate simulated historical records without the need for an external database.
- Added a new [DB Table Historian Provider](#) that can expose wide database tables to the Tag Historian, allowing tag history queries to retrieve records from tables generated by external systems.

Tags System

- The [Tag Browser](#) has been updated with a new design for ease of use. Tags and [UDT Definitions](#) now have their own tabs. A [Tag Provider Selector](#) enables you to view Tags for a specific Tag provider.
- Tags with a Document data type can now be bound to from components, which will provide a JSON string. In these cases you can write back to the elements if the binding is set to bi-directional. See the [It's also possible to address certain elements within the document when using a certain syntax](#). See the [Tag Paths](#) page.
- [Tag Browser](#) Trait icons for various configurations (i.e., Scale Mode, Custom Security, Scripts, Alarms, or History) appear to the right of the Tag name.

- **User Defined Types - UDTs** can be color coded, which applies a color to the Root Node.
- The **Tag Creator** allows you to browse a connected device to add OPC Tags and create any type of standard Tag. You can even edit your Tags individually or multiple Tags all at once.
- Added **UDT Inheritance** and type hierarchy icons that display UDT types, instances, and properties that override the parent properties.

Other Editions

 **Ignition Edge**

 **Ignition Maker Edition**

A community version of Inductive Automation's Ignition SCADA application.

 **Ignition Cloud Edition**

Ignition Edge

Ignition Edge is a lightweight version of Ignition designed for use on field devices and OEM hardware at the edge of the network. It supports multiple operating systems, including Linux, Windows, and macOS, and is compatible with ARM processors, making it suitable for devices such as Raspberry Pi and modern industrial edge hardware.

Ignition Edge can be installed on any system that meets the minimum requirements, including industrial PCs, panel PCs, and other edge-capable hardware. In addition to manual installation, Ignition Edge is also available preinstalled on select devices offered by Solution and Alliance Partners like Opto22 and OnLogic.

Licensing

The new Edge version of Ignition has a separate license that works in the same way as a traditional Ignition license. The Edge license is set up to only work on an Edge Gateway, so it will not work if you attempt to activate it on an Ignition Gateway. However, you can activate a full Ignition license on an Edge Gateway, although this is not recommended due to the limitations of the Edge platform.

Additionally, once a license has been activated on an Edge Gateway, the trial time for any unlicensed Edge products will be removed, and you will no longer have access. To regain access, contact your Account Representative and inform them what Edge products you need to purchase. After purchasing, the products will be added to the existing license. Reload the license on your Gateway to view and use the products.

Core Functionality

All Edge installations are a limited version of the Ignition platform for a significantly reduced cost. This helps keep things simple, and these installations always work with other full versions of Ignition if you need additional functionality. The following features are available on all Edge Gateways, licensed or unlicensed. See [Edge Gateway](#) for more details on the the Edge Gateway.

OPC UA Module and Drivers

Edge can create OPC UA client connections natively to other UA servers. The IIoT product allows Edge to act as an OPC UA server, allowing other OPC UA clients to connect to Edge's OPC UA server.

Internal Storage

An Edge installation can store certain historical data inside Ignition.

- **Tag History** -

Changed in 8.1.34 Up to 35 days or 10 million data points of history can be stored locally. Pruning will automatically happen, and the historian is automatically enabled and not configurable. You can learn more about Tag History [here](#).

- **Alarm Journal** - The Alarm Journal will store all alarm events locally for one week of events. There are limited configuration options; the Alarm Journal can be accessed via the Edge Alarm Journal profile.
- **Audit Logs** - Like the Alarms, the Audit log is limited to one week of local storage. It is not configurable.

NOTE

Edge storage data can be synchronized to a standard Ignition Gateway over the Gateway Network using [Sync Services](#).

Projects

Edge installations have just one project. This project is created automatically if it did not exist, and it cannot be removed. The default project name is "Edge" and can be renamed. For more information, see [Edge Gateway Config](#) section.

Redundancy

Two Edge Gateways can be set up with [redundancy](#). An Edge Gateway can only failover to another Edge Gateway (not a standard Ignition Gateway).

One-Way Email Notifications

Edge Gateways can make use of a [Simple One-Way Email Notification Profile](#), allowing the Gateway to send out email notifications.

Edge Products

! INFO

Changed in 8.1.33

The Edge product line was reconfigured to combine the five previous Edge products into two updated Edge products. Users with an existing Ignition Edge license and Upgrade Protection may have upgrades available, contact your account representative for more information.

Pages detailing features of the previous Edge products can be found in [Deprecated Ignition Features](#).

Edge Gateways can fill multiple roles and help bridge different architectures, and the available product options further extend Edge's capabilities. There are two Ignition Edge products available: **Ignition Edge IIoT** and **Ignition Edge Panel**. Please note that a license is required to activate an Ignition Edge product.

Both **Ignition Edge IIoT** and **Ignition Edge Panel** have been updated to automatically include the **EAM**, **Compute**, and **Sync Services** products that were offered as stand-alone products prior to 8.1.33.

Product	Description
 IIoT	Ignition Edge IIoT turns virtually any field device, such as a touch panel or a client terminal, into a lightweight, MQTT-enabled Edge Gateway that works seamlessly with Ignition IIoT and other common IIoT platforms, providing remote data acquisition and optional secured feedback and control. It's ideal for polling data at the device location and publishing data to an MQTT server that business systems and applications can access. Ignition Edge IIoT includes unlimited tags and device connections for included drivers, the ability to run scripts, create REST APIs, synchronize data to a central server, and act as an EAM Agent Gateway.
 Panel	Ignition Edge Panel includes everything in Ignition Edge IIoT plus local visualization functionality for your HMIs. Choose between Perspective (2 sessions) or Vision (1 local client, 1 remote client) as your visualization system for Edge Panel. Build future-proof, robust local control systems that are Industry 4.0-compatible. It's ideal for standalone HMIs and providing a local-client fallback for field HMIs if the network connection is lost. Like Ignition Edge IIoT, Ignition Edge Panel includes unlimited tags and device connections for included drivers, the ability to publish MQTT data, run scripts, create REST APIs, synchronize data to a central server, and act as an EAM Agent Gateway. Additionally, both the Web Browser module and Symbol Factory image library are included in Edge Panel.

Edge EAM



Changed in 8.1.33

This Edge product is no longer a stand-alone Ignition Edge product. It is now included in both the **Edge IIoT** and **Edge Panel** products.

The EAM product allows an Edge Gateway to act as an agent in EAM architecture. The Edge Gateway can only be an agent, not a controller. EAM enables you to bring diagnostics, automatic backup and recovery, central licensing, and project and tag synchronization to your edge-of-network device.

The EAM product activates the [Enterprise Administration](#) module. Some features of Ignition Edge EAM require the [Enterprise Administration module](#) to be installed on the central Ignition Gateway.

For an example of architecture using EAM, see [Edge Architectures](#).

Gateway Backup and Recovery

The EAM enables automated backup and quick recovery for all Gateways through a Gateway backup archive.

Edge Compute



Changed in 8.1.33

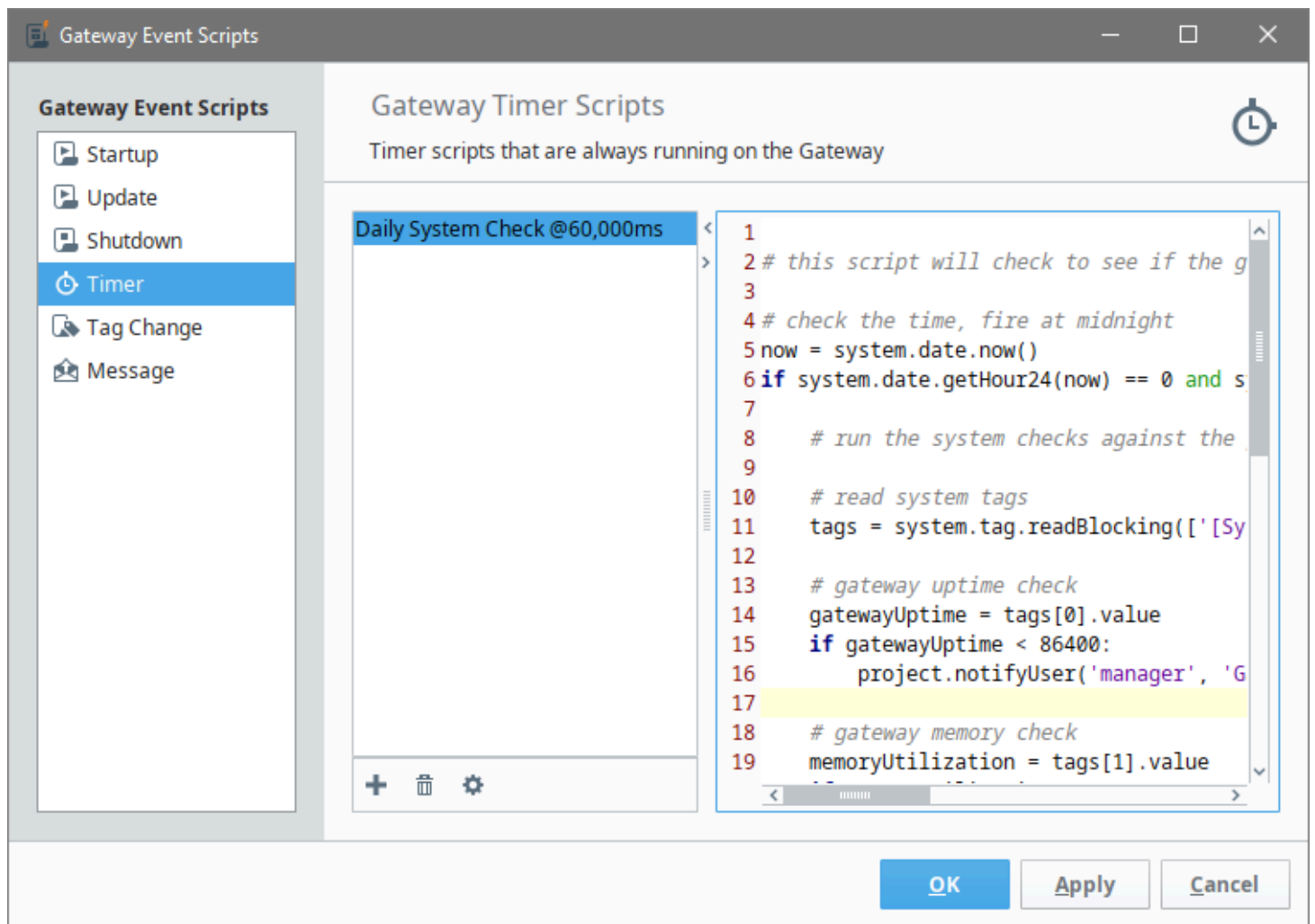
This Edge product is no longer a stand-alone Ignition Edge product. It is now included in both the [Edge IIoT](#) and [Edge Panel](#) products.

Ignition Edge Compute brings true edge computing to your network. Compute enables you to program directly against the web server in the Ignition Edge Gateway. You can remotely run scripts and create REST APIs for interfacing with third party applications. It also provides Gateway Network Messaging.

Ignition Edge Compute gives your edge devices the ability to run scripts without the need to depend on the central server. Python is an easy to read, versatile programming language. Even if you don't know it at all, you will probably be able to understand a basic Python script. See [Python Scripting](#) for complete information.

Scripting in Edge Compute

Gateway-scoped scripting, such as [Gateway Event Scripts](#) and scripts that execute on a tag (such as [Tag Event Scripts](#) or scripts called by [runScript](#) on a tag/alarm property), are unlocked when the Compute product is applied. This allows you to use any of the Gateway Event Scripts for your project. You will not see the “Gateway Events” menu item in the Designer on unlicensed Gateways. Applying a license will require a Designer restart before the menu item will appear.



Edge Gateway Network Messaging

Edge Compute provides access to call message handlers on other Gateways. This allows you to send data to other Gateways to be dealt with. You can access this functionality through the following `system.util` messaging functions:

- `system.util.sendMessage`
- `system.util.sendRequest`
- `system.util.sendRequestAsync`

WebDev Module

Edge Compute comes with the **WebDev module**, which enables you to directly program against the web server inside the Ignition Edge Gateway and systems running Vision Clients. This gives you the ability to host web pages or files, and create full-fledged REST APIs that allow external systems to interact with the Ignition server.

Edge Sync Services



Changed in 8.1.33

This Edge product is no longer a stand-alone Ignition Edge product. It is now included in both the [Edge IIoT](#) and [Edge Panel](#) products.

Ignition Edge Sync Services acts as a limited remote server that synchronizes data from the edge of the network to a central Ignition server.

- Remote tags
- Tag history sync
- Alarm journal sync
- Audit log sync
- Remote alarm notification profiles

For an example of architecture using Sync Services, see [Edge Architectures](#).

Agent Gateway

Ignition Edge Sync Services, acting as an Agent Gateway in a secure, high-performance Ignition Gateway Network, can share information with other Ignition Gateways through Distributed Services, including distributed tags, history, and remote alarming.

Store and Forward

Changed in 8.1.34

Ignition Edge Sync Services now comes with 35 days of historical data buffering, instead of a single week, so it can be better used to store-and-forward your data to a central server in case of network failure. Alarm Journal and Audit Log data is still limited to 7 days of storage.

Data Synchronization

Synchronization allows you to sync your historian data, audit records, and alarm journal entries from the Edge Gateway to a Standard Ignition Gateway, allowing you to save past the internal data limit. The Edge Gateway will still only see the limited data it can hold, but synchronization will allow you to store the data in a more permanent database that can be viewed from other Ignition systems.

Before data can be synchronized across Gateways, your Standard Gateway's system must be configured to accept Edge storage. See [Data Synchronization](#) on the Configuring Sync Services page for setup information.

Sync Reset

Edge has a way to reset synchronization state for remote services. If you restored a Gateway backup onto a system with existing locally "syncable" configuration files, then the backup may have IDs from a range beyond the local files. Use the **Reset** button under **Config > Data Sync > Overview** to reset your local sync configuration.

NOTE

Prior to 8.1.8, the Sync Reset functionality can be found under **Config > Enterprise Services > Sync Reset** page.

⚙️ Config > Datasync > Overview

« < 1 of 1 > »

Filter

View 20 ▼

Name ▲	Sync Type	Current Sync ID	
Edge Historian	Tag Historian	8574	Reset

« < 1 of 1 > »

Remote Alarm Notification Profiles

Sync Services allows alarms in the Edge Gateway to invoke remote alarm pipelines, via a remote alarm notification profile configured on the Edge Gateway.

For more information, see [Alarm Notification Profiles](#).

Remote Tag Provider

With Edge Sync Services installed, Ignition Gateways will be able to create remote Tag Providers, targeting a provider on an Edge Gateway: either the system provider or the one realtime Tag Provider. This also allows writing to tags on your Edge server from your central server and for tags to be edited

from a remote Designer, among many other options to customize your remote Tag Provider and security services beyond enabling Read/Write capabilities.

Ignition Edge Compared with Ignition

Because Edge is a lean solution, it does have some functionality limitations compared to full Ignition. Ignition and Ignition Edge share the same basic platform, but Edge is a leaner version of Ignition made specifically for use in on edge-of-network devices. Ignition comes with unlimited tags, Clients, and database connections, while Ignition Edge comes with unlimited tags, two Clients (one local and one remote) and no database connectivity.

Changed in 8.1.33 Prior to 8.1.33, the addition of the Compute product was required to take advantage of Gateway Events Scripts and Tag Events Scripts with an Edge installation, making Gateway scripting a notable difference between Ignition Edge and Standard Ignition. Now, both Ignition Edge IIoT and Ignition Edge Panel have been updated to automatically include the Compute, Sync Services, and EAM products so Gateway level scripting is no longer a difference between Ignition Edge and Standard Ignition.

- **Database Access:** Database access is disabled. This means that any database queries or bindings will not work, and the user sources that require a database connection will not be available. The Status and Config pages of the Gateway Webpage have been updated to remove these features and reduce confusion. Despite this restriction, some historical storage can happen inside of Ignition.
- **Gateway and Project Backups:** A Gateway backup made in an Edge installation will work in other Edge installations, or if needed, Standard Edition Gateways as well. Although restoring a Standard Edition Gateway backup is possible in an Edge installation, it is not recommended due to the limitations of the Edge platform. You can, however, still export tags, windows, and other project resources in the Designer from Standard Edition Gateways and import them into an Edge project, or vice versa.
- **Tag Providers:** Edge Gateways only contain a single active Realtime Tag Provider. Additional providers may not be created.
- **Historian Providers:** Edge Gateways contain a single historian provider, which is an instance of an [internal historian provider](#) (named the Edge Historian Provider)
- **Third Party Modules:** Edge's core functionality and products largely determine which modules run on the platform. Third party modules will not run on an Edge Gateway, with the exception of any third party module explicitly stated by a product, such as the [Edge IIoT](#) product.

- **Visualization:** Visualization is only supported on Edge Panel and not Edge IIoT. Additionally, Edge Panel Gateways have a limit of two Vision Clients or Perspective Sessions running concurrently.

Edge Gateway

The Edge Gateway has many of the same options as the regular [Ignition Gateway Webpage](#) along with a few Edge-specific settings and visual changes. You can see below that after installing Edge, the traditional orange Ignition logos are replaced with new green Edge logos so a Gateway can be easily identified.

Home

The first time you go to the Edge Gateway Webpage, it shows you several steps to help you get started. Once you're up and running, the [Home](#) tab lets you download the Designer Launcher or Vision Client Launcher, or view a Perspective project. There are some resource links to help you get started with Ignition quickly: Inductive University, Quick Start Guide or Product Documentation where you can learn about Ignition modules, as well as the Appendix which contains a complete reference for components, expressions, and scripting functions.

When you're first introduced to Ignition, the Homepage is the landing page. It's where you'll find the Designer Launcher, Vision Client Launcher, and Perspective Sessions.

- The [Designer Launcher](#) locates all Gateways that are available on your local network. Once you open the Designer, you can access the Edge project.
- The [Vision Client Launcher](#) opens Vision Clients from any Ignition Gateway.
- The [Perspective Sessions](#) opens Perspective sessions from this Gateway.

If you're running Perspective as the visualization method for your project, you can launch a Perspective Session from the Designer, from the Gateway, or by entering the web address of the project in your web browser.

Ignition-d505cfa0c6c5 admin | Log Out →

IgnitionEDGE! Help ? Get Designer

Home Home > Get Started Trial Mode 1:25:52 Activate Ignition

Status Config

WELCOME

Meet Ignition Edge



Build It

Get the Designer

The Designer brings all your data, systems, and developers together into one beautifully simple, integrated development environment specifically designed to help you build industrial applications more quickly.



[Download Designer Launcher](#)

Run It

Vision Client Launcher

Download the Native Client Launcher to open Vision clients from any Ignition Gateway.



[Download Vision Client Launcher](#)

Perspective Workstation

Download Perspective Workstation to open sessions from any Ignition Gateway.



[Download Perspective Workstation](#)

Status

The **Status** tab provides an overview of all of the systems in your Gateway while also enabling you to drill down into specific systems and get an in-depth view of what is currently happening. For complete information, see Ignition Gateway **Status**.

Ignition-d505cfa0c6c5 admin | Log Out Help ? Get Designer

Home **STATUS** Config

SYSTEMS

- Overview
- Performance
- Gateway Scripts
- Modules
- Redundancy
- Tags

CONNECTIONS

- Designers
- Devices
- Gateway Network
- Store & Forward
- OPC Connections
- Perspective Sessions
- Vision Clients

DIAGNOSTICS

- Execution
- Logs
- Metrics Dashboard
- Running Scripts
- Threads

Search...

Status > Systems > Overview

Trial Mode 1:23:05 We're glad you're test driving our software. Have fun. Activate Ignition

Architecture

Gateway | Ignition-d505cfa0c6c5 0% cpu 155 mb

Version: (Dev Version)
License: trial
Uptime: 37 minutes

No Redundancy
Add a redundant backup gateway to protect your system from downtime caused by failures.

No Gateway Network
Multiply the power of your Ignition Gateways by combining them into an enterprise network. Streamline the administration, monitoring, deployment, and commissioning process into one central location.

Connections

Designer Sessions 0 open

Devices 0 enabled

Gateway Network Connections 0 / 0 connections

OPC Connections 1 / 1 connected

Perspective Sessions 0 open

Store & Forward 0 stores quarantined

Environment

Process Id	28
Operating System	Linux amd64
Java Version	11.0.15+10-LTS
Local Time	5:06:29 PM
Available Disk Space	241gb / 288gb
Detected NICs	

Systems

EAM Role	Unknown
Modules	19 installed
Performance	0% CPU 154mb
Redundancy	Not configured
Tags	72 tags

Config

The Config tab provides access to configuration options for Gateway settings. This is where most of the settings that affect the whole Gateway are set up. Note that some settings such as database connections are not available for Edge. For complete information, see Ignition Gateway [Config](#).

New in 8.1.20 Select Cirrus Link modules will be displayed on the Edge Gateway's Config Overview page. These modules will be available to install and use if your Ignition license supports them. The modules will also be available to install and use during Ignition's two hour trial period if you are either not using a license, or using Ignition in trial mode.

Config > System > Overview

Trial Mode 0:26:56 We're glad you're test driving our software. Have fun. [Activate Ignition](#)

Cirrus Link Modules

Available

- Cirrus Link MQTT Engine Module For Ignition Edge** [Details](#) [Install +](#)
Bidirectionally communicate with edge-of-network devices securely via an MQTT Server.
- Cirrus Link MQTT Distributor Module For Ignition Edge** [Details](#) [Install +](#)
Adds an MQTT server to connect, publish, and subscribe to device data. The Distributor Module has a limit of two native driver device connections and two external OPC UA connections, and a limit of 50 simultaneously connected clients.
- Cirrus Link AWS Engine For SiteWise Module For Ignition Edge** [Details](#) [Install +](#)
Interface with AWS IoT SiteWise service to automatically discover assets and create tags.
- Cirrus Link AWS Injector Module For Ignition Edge** [Details](#) [Install +](#)
Send Ignition tag data into the Amazon Web Services (AWS) cloud.
- Cirrus Link Azure Injector Module For Ignition Edge** [Details](#) [Install +](#)
Send Ignition tag data into the Azure IoT Hub.
- Cirrus Link IBM Cloud Injector Module For Ignition Edge** [Details](#) [Install +](#)
Send Ignition tag data into IBM Cloud.
- Cirrus Link Google Cloud Platform Injector Module For Ignition Edge** [Details](#) [Install +](#)
Send Ignition tag data into the Google Cloud Platform.

Home Status Config

Search...

Edge Gateway Settings

There is an additional set of Gateway Settings for Edge that are not available in regular Ignition. These settings enable you to modify the names of the Edge project, Edge Tag Provider, and Edge Historian. You can also set the visualization method (Vision or Perspective) here if you are using the [Edge Panel](#) product.

Edge Setting	Description
Project Name	The name of the Edge project. Default is "Edge." Only one project can exist in an Edge Gateway. You can change the name of this project with this setting.
Tag Provider Name	The name of the Edge Tag provider. Only one provider can exist in an Edge Gateway. Changed in 8.1.11 As of 8.1.11, this property has been removed. The name of the loaded tag provider can be changed on the realtime tag provider page: Config section of gateway > Tags > Realtime.
Tag Provider	New in 8.1.11 Represents the tag provider that is currently loaded on the Edge Gateway. Normally, only a single tag provider can be created on an Edge Gateway, but if the gateway was recently switched from Standard Edition to Edge, then there could be additional tag providers within the gateway's internal database. This setting allows you to select which of those tag providers to use.
Tag Editing Permissions	New in 8.1.2 Determines which users are allowed to edit tags on the Edge Gateway. See the Tag Editing Permissions property description on the Tag Providers page.
Tag Reading Permissions	New in 8.1.8 Determines which users are allowed to read tags on the Edge Gateway. See the Tag Reading Permissions property description on the Tag Providers page.
Read Only	New in 8.1.8 If enabled, writes to any tag within this tag provider will be rejected, regardless of the target tag's permissions. Disabled by default.
Tag Write Permissions	New in 8.1.8 Determines which users are allowed to write to tags on the Edge Gateway. See the Tag Write Permissions property description on the Tag Providers page.
Historian Name	The name of the Edge Historian. Only one historian can exist in an Edge Gateway. Caution: If a historian name is changed after tag history has already been configured for a tag under the previous historian name, the storage

Edge Setting	Description
	provider setting will need to be manually updated in the Tag Editor to match the new historian name.
Visualization Name	The name of the default Edge Panel visualization method (Vision or Perspective). Only one visualization system can be used in an Edge Gateway. This value is unused if the Edge Panel product is not licensed. Default is Vision.

Accessing Edge Gateway Settings

1. To get to the settings, choose **Config > Gateway Settings** on the Edge Gateway Webpage.

The screenshot displays the Ignition EDGE! web interface. On the left, a navigation sidebar includes 'Home', 'Status', 'Config' (highlighted with a red box), and a list of settings categories: 'SYSTEM' (Overview, Backup/Restore, Ignition Exchange, Licensing, Modules, Projects, Redundancy, Gateway Settings) and 'NETWORKING' (Web Server, Gateway Network, Email Settings). 'Gateway Settings' is highlighted with a red box. The main content area shows the 'Gateway Settings' page under the breadcrumb 'Config > System'. A green banner at the top of the main area indicates 'Trial Mode 1:59:44'. The settings table includes:

Gateway Settings	
System Name	
The name of this Ignition system, used to differ (default:)	
System User Source	default
This user source controls access to the Gateway's	
Gateway Config Role(s)	Administrator
Users must belong to one of these roles in order to	

2. Scroll down to the **Edge Settings** section.

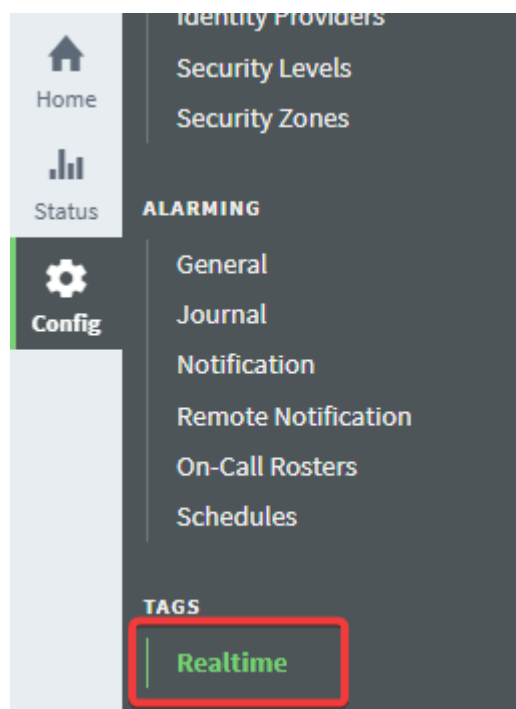
Edge Settings	
Project Name	Edge The name of the default Edge project. Only one project can exist in an Edge gateway. (default: Edge)
Tag Provider Name	edge The name of the default Edge tag provider. Only one realtime tag provider can exist in an Edge gateway. (default: edge)
Tag Editing Permissions	☒ Users must belong to all of these security levels in order to edit this provider's tags. ☐ Users must belong to at least one of these security levels in order to edit this provider's tags. Multiple security level paths can be specified by separating them with commas. If blank, tag editing for this provider will not be restricted. Example: Authenticated/Roles/Administrator,SecurityZones/localhost
Historian Name	Edge Historian The name of the default Edge historian. Only one historian can exist in an Edge gateway. (default: Edge Historian)
Visualization Module	VISION The module to be used for client visualization. Only a single visualization module can be active on an Edge gateway. The setting is ignored if Panel is not part of the license. (default: VISION)

3. Change the settings as desired, then click **Save Changes** at the bottom of the screen.

Edge Tag Provider Page

New in 8.1.11

Located under **Config > Tags > Realtime**, this page allows you to change the name and description of the loaded tag provider.

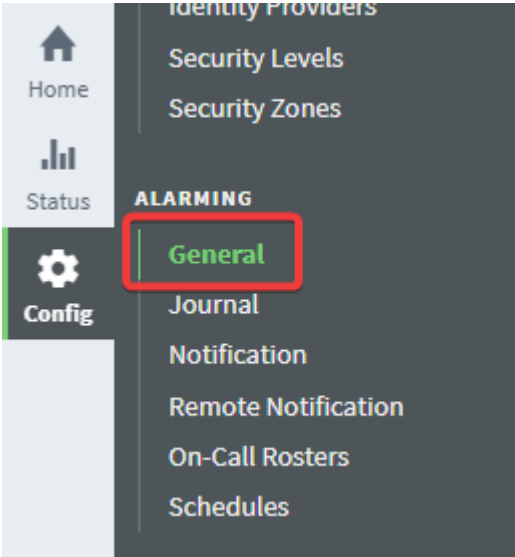


In addition, the page contains an **Allow Back-fill Data** setting, which functions in a similar manner to the same setting on Standard edition Gateways. See [Tag Providers](#) for more details.

Edge General Alarm Settings Page

New in 8.1.21 The General Alarm Settings page provides basic alarm settings including the Live Event Limit, Continuous Event Detection Window, and Notify Initial Events.

This page is located under **Config > Alarming > General**.



Alarm Evaluation and Event Suppression settings are available to edit on this page.

Alarm Evaluation	
Live Event Limit	5 The number of "live" events (active or unacknowledged) that can exist for a single alarm at a given time. When surpassed, older events will be acknowledged automatically by the system. (default: 5)

Event Suppression	
Continuous Event Detection Window (min)	10 How long to store events for on shutdown, to prevent new events on startup. Prevents unacknowledged active events from being generated due to reboot. If set to 0, will not be used. (default: 10)
Notify Initial Events	☐ If false, active alarms caused by the "initial state" (that is, the first value checked after being created, or after the enabled state changes) won't be sent to the notification system. (default: false)

Save Changes

For more information about the Gateway's Alarming settings, see Alarming on the [Gateway Config](#) description page.

Configuring Sync Services

Data Synchronization

Synchronization allows you to sync your historian data, audit records, and alarm journal entries from the Edge Gateway to a Standard Ignition Gateway, allowing you to save past the internal data limit. The Edge Gateway will still only see the 35 days of Tag History and 7 days of Alarm Journal and Audit Log data that it can hold, but it will allow you to store the data in a more permanent database that can be viewed from other Ignition systems.

Before data can be synchronized across Gateways, your Standard Gateway's system must be configured to accept Edge storage. This can be completed by navigating to **Config > Security > Service Security** and select **Query and Storage** for the sections you will be receiving data from such as Alarm Journal Access, Audit Log Access, or History Provider Access.

History Provider Access	
Service Access	Allow
Default Profile Access	Query and Storage
Access Level: 'New'	Inherited
Access Level: 'CoreTest'	Inherited

Once you've allowed storage access, you can navigate back to your Edge Gateway to finish configuring your synchronization settings under **Config > Data Sync > Settings** page.

NOTE

Prior to 8.1.8, the Sync settings can be found under **Config > Enterprise Services > Settings** page.

The following tables describe the synchronization settings.

Main Settings

Property	Description
Remote Gateway Name	The gateway to target for remote synchronization.

Remote History Sync Enabled Settings

Property	Description
Remote History Provider Name	The remote history provider to sync data to.
Remote History Sync Enabled	Whether to send local tag history data to the remote system. The remote system must have the Tag Historian module installed, and allow remote storage. Default is false.
Max Batch Size	The maximum number of data points that will be sent per batch to the remote gateway.
Sync Frequency	The frequency with which data will be sent to the remote gateway. This setting will be used in conjunction with the sync schedule, if enabled.
Sync Frequency Units	Units are defined as milliseconds, seconds, minutes, hours, days, weeks, months, and years.
Enable Schedule	If enabled, the data will only be synchronized during the times specified by the pattern provided.
Schedule Pattern	A comma separated list of time ranges that will determine when data will be sent over the network. Accepted formats include am/pm notations, military time, and the use of colons or periods to distinguish the hour from minutes. Minutes are not required. For example, a schedule could look like the following: 9:00-15:00, 6pm-1am, 06.30-07.30

Remote Audit Settings

Property	Description
Remote Audit Profile Name	The remote audit profile to sync data to.
Remote Audit Sync Enabled	Whether Remote Audit Sync is enabled. Default is false.
Sync Frequency	The frequency with which data will be sent to the remote gateway. This setting will be used in conjunction with the sync schedule, if enabled.
Sync Frequency Units	Units are defined as milliseconds, seconds, minutes, hours, days, weeks, months, and years.
Enable Schedule	If enabled, the data will only be synchronized during the times specified by the pattern provided.
Schedule Pattern	A comma separated list of time ranges that will determine when data will be sent over the network. Accepted formats include am/pm notations, military time, and the use of colons or periods to distinguish the hour from minutes. Minutes are not required. For example, a schedule could look like the following: 9:00-15:00, 6pm-1am, 06.30-07.30

Remote Alarm Journal Settings

Property	Description
Remote Alarm Journal Name	The remote alarm journal to sync data to.
Remote Journal Sync Enabled	Whether Remote Alarm Journal settings are enabled. Default is false.
Sync Frequency	The frequency with which data will be sent to the remote gateway. This setting will be used in conjunction with the sync schedule, if enabled.
Sync Frequency Units	Units are defined as milliseconds, seconds, minutes, hours, days, weeks, months, and years.
Enable Schedule	If enabled, the data will only be synchronized during the times specified by the pattern provided.
Schedule Pattern	A comma separated list of time ranges that will determine when data will be sent over the network. Accepted formats include am/pm notations, military time, and the use of colons or periods to distinguish the hour from minutes. Minutes are not required. For example, a schedule could look like the following: 9:00-15:00, 6pm-1am, 06.30-07.30

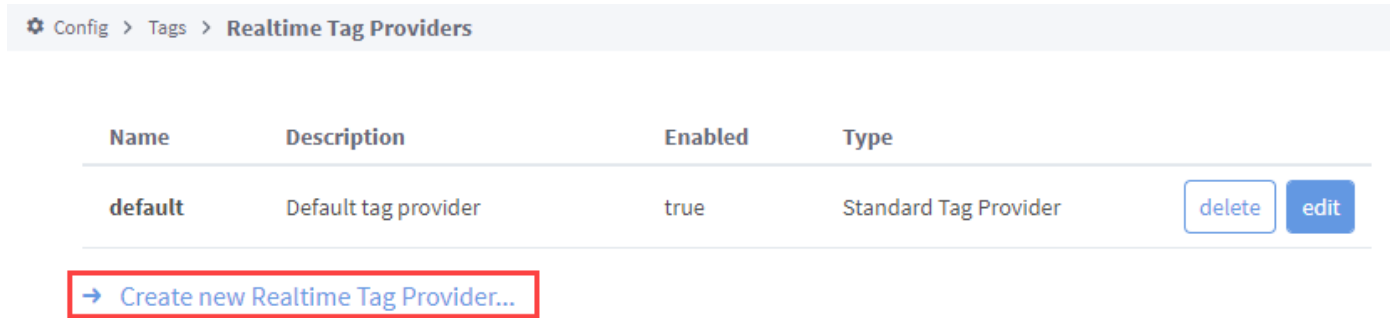
Sync is unique in that if the connection to the remote Ignition Gateway is severed, the Edge Gateway will use its 35 days of storage as a Store and Forward buffer, allowing you to store up to 35 days of data before data is lost. Once the connection is restored, the Edge Gateway will send data over based on the max batch size and data frequency until all previous data is sent.

Remote Tag Provider

The processes below describe how to set up your remote Tag Provider and allow writing to tags on your Edge server from your Central server. You'll notice during setup that there are many options to customize your remote Tag Provider and security services beyond enabling Read/Write capabilities. See the [Tag Providers](#) and [Security Zones](#) pages for complete configuration information. Before attempting to create a remote Tag Provider, make sure you have a valid [Gateway Network connection](#).

To expose Edge remote tags to your central Gateway:

1. Navigate on your central Gateway **Config > Tags > Realtime**.
2. Click **Create new Realtime Tag Provider**.

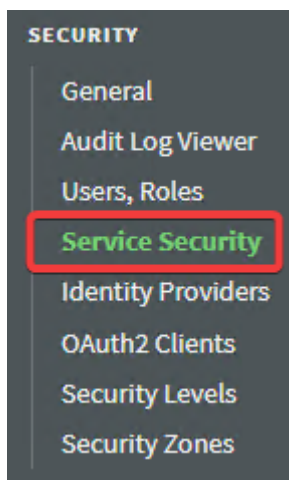


3. Select **Remote Tag Provider (Gateway Network)**.
4. Click **Next**.
5. Select your Edge Gateway.
6. Click **Next**.
7. Customize your tag provider settings as desired.
8. Click **Create New Realtime Tag Provider**.

Now that you've created your remote Tag Provider, you can access your central Gateway's Designer and see your new remote Tag Provider. You can read your tags, but still need to configure security before you can write to them. If you try to write at this point, an error message will appear because the default security zone settings restrict write access to these tags.

To configure system security to allow writing to tags:

1. On the Edge Gateway, navigate to **Config > Security > Service Security**.



2. Click **Edit** for Edge Gateway's Security Zone.



Security policies are defined based on Security Zones. The highest ranking policy (from the top down) for a connection's zones will be used. If no other policies match, the "Default" policy will be used.

Security Zone	Policy Defined?
Default	false

Edit

⚠ CAUTION

After policies are defined on at least two zones, you'll notice **Move Down** and **Move Up** button options are displayed. Use these as needed to make sure your Security Zones are listed in the correct order. If your incoming connection falls into multiple security zones, the one it falls into first is the one that will be used.

3. Scroll down to the Tag Access section to change your Access Level setting to Read/Write.
4. Locate the **Access Level** setting for your Edge Tag Provider and use the dropdown to select **ReadWrite**.

📘 NOTE

If you want to enable ReadWrite access for all tags in this security zone, you can select ReadWrite for the Default Provider Access Level setting.

Tag Access	
Service Access	Allow
Default Provider Access Level	ReadOnly
Trust Remote Security Levels	☐ If checked, security levels passed from the remote Gateway will be used for determining access to tags on the local Gateway. If unchecked, or if the remote Gateway is on a version which does not support this feature, the remote Gateway's security zones and the impersonation role will be used as the security levels.
Impersonation Role Name	 This role name will be injected into the security model of the tag for read/write/subscribe/edit operations.
Access Level: 'edge'	Inherited
Access Level: 'System'	Inherited None ReadOnly ReadWrite ReadWriteEdit

Save

5. Click **Save**.

With the changes to the security zone in place, you can now write to the tags without an error message and any values entered into the tag on your central Gateway will update in the actual Tag Provider on your Edge Gateway. Follow this same procedure and select **ReadWriteEdit** to allow tags to be edited from a remote Designer.

Edge IIoT



Changed in 8.1.33

The Edge IIoT product now includes all [Compute](#), [Sync Services](#), and [EAM](#) features. Users with an existing Ignition Edge license and Upgrade Protection may have upgrades available. Contact your account representative for more information.

The IIoT product (formerly known as MQTT) allows this copy of Edge to push data directly into a Broker using the fast and lightweight MQTT data transfer protocol. In effect, this makes your computer (and whatever devices are attached to it) into a remote MQTT publisher. If you are already rolling out new smart devices that connect to your Broker, this allows you to connect all of your legacy devices into the same system. IIoT product also allows UA clients to connect to the UA server on Edge.

Edge IIoT activates the following modules:

- MQTT Transmission
- Opto22 SNAP PAC driver

Remote Tag Provider

With Edge IIoT installed, Ignition Gateways will be able to [create remote Tag Providers](#), targeting either the system provider or the one realtime Tag Provider on an Edge Gateway.

For more information about remote Tag Providers, see [Tag Providers](#).

Expose Edge's UA Server

The IIoT product enables UA clients to connect to the UA server on Edge. Applying this product will require that the OPC UA module is restarted before the UA server will be available publicly.

If using a version earlier than 8.1.40, the MQTT Transmission module is required to expose Ignition's OPC UA server when your Gateway is licensed. The procedure [below](#) describes this process.

Install the MQTT Transmission Module

Changed in 8.1.40

Prior to 8.1.40, the MQTT Transmission module from Cirrus Link was needed to activate the IIoT product, but now all built-in OPC UA server functionality is directly available. However, the MQTT Transmission module is still required to leverage the third-party modules listed on the [Strategic Partner Modules](#) page.

1. Download the MQTT Transmission module from the [Inductive Automation](#) website.

Download Ignition

Other operating systems and versions

[Ignition](#)[Version Archive](#)[Strategic Partner Modules](#)

Ignition Version:

Ignition Version 8.0.9 STABLE

Released February 18, 2020

[System Requirements](#)[Release Notes](#)

Strategic Partner Modules

All third party Ignition modules require the Ignition platform to be installed.

To install third party modules:

1. Install Ignition: [See Ignition installation guide](#)

2. Once Ignition is installed, download the module and install it in the Ignition Gateway: [See module installation guide](#)

Cirrus Link Solutions MQTT Modules for Ignition	Version	Checksum
See the release notes and usage documentation for all Cirrus Link modules here .		
MQTT Distributor Module (30.5 MB)	4.0.3	sha-256
MQTT Engine Module (25.7 MB)	4.0.3	sha-256
MQTT Transmission Module (21.8 MB)	4.0.3	sha-256

2. Go to the **Config** tab of your Edge Gateway to access the **System > Modules** page.

3. On the **Modules** page, scroll down and click on **Install** or **Upgrade a Module...**

IgnitionEDGE! Help ? Get Designer

Config > System > Module Configuration

Inductive Automation

☒ View Certificate

Name	Version	Description	License	State		
Alarm Notification	5.0.6 (b2019111216)	Provides alarm notifications via email	Trial	Running	More ▾	restart
Allen-Bradley Driver	5.0.6 (b2019111216)	Allen-Bradley driver suite for the OPC UA module.	Trial	Running	More ▾	restart
Enterprise Administration	3.0.6 (b2019111216)	A remote Gateway administration system, allowing you to manage Gateways and automate tasks from a single controller.	Trial	Running	More ▾	restart
Logix Driver	4.0.6 (b2019111216)	A driver for communicating with Allen-Bradley Logix5000 series PLCs, and includes firmware version 21 support	Trial	Running	More ▾	restart
Modbus Driver	6.0.6 (b2019111216)	A driver for communicating with devices via Modbus-TCP.	Trial	Running	More ▾	restart
OPC-UA	8.0.6 (b2019111216)	Provides Ignition's OPC UA client and server functionality.	Trial	Running	More ▾	restart
Siemens Drivers	5.0.6 (b2019111216)	Siemens S7-300, S7-400 and S7-1200 drivers.	Trial	Running	More ▾	restart
Tag Historian	3.0.6 (b2019111216)	Turns any database into a powerful historian that can store and drive data in Ignition.	Trial	Running	More ▾	restart
Vision	10.0.6 (b2019111216)	A module that provides web-launched HMI/SCADA clients.	Trial	Running	More ▾	restart

[→ Install or Upgrade a Module...](#)

Note: For details about a module's status, see the [Module Status](#) page.

4. Click on **Choose file**.

Config > System > Module Configuration

To **install** a module, choose its `*.mod1` file and press "Install".
 To **upgrade** a module, install the new version on top of the existing version.
 Modules can be **downloaded** from [our website](#).

Choose File No file chosen

Install

5. Navigate to the folder where you downloaded MQTT-Transmission-signed.mod1, select the file, and click **Open**.
6. Click the **Install** button.
7. At the License agreement, select **I accept the terms in the License Agreement**, then click the **Accept License** button.
8. At the Trusted Certificates window, click **I want to add this certificate to my trusted certificates and install the module**.
9. Click the **Add Certificate and Install Module** button.



This certificate has been signed by a trusted Certificate Authority.

Not Valid Until 6/30/19, 5:00:00 PM
Not Valid After 7/10/20, 4:59:59 PM
Subject Name Cirrus Link Solutions LLC
Issuer Name thawte SHA256 Code Signing CA
Thumbprint [8D 8B B7 3A 51 FB F4 85 29 55 0A B3 75 1A 04 86 50 AA B0 54]

This module's certificate has been signed by a trusted Certificate Authority.



I want to add this certificate to my trusted certificates and install the module

Add Certificate and Install Module

< Back

10. You'll see a message indicating the module was successfully installed. The module will show up on the Module Configuration page in the Edge Gateway now.

Cirrus Link Solutions LLC

[View Certificate](#)

Name	Version	Description	License	State	
MQTT Transmission	4.0.2 (b2019101100)	An Ignition Tag to MQTT Bridge	Trial	Running	More restart

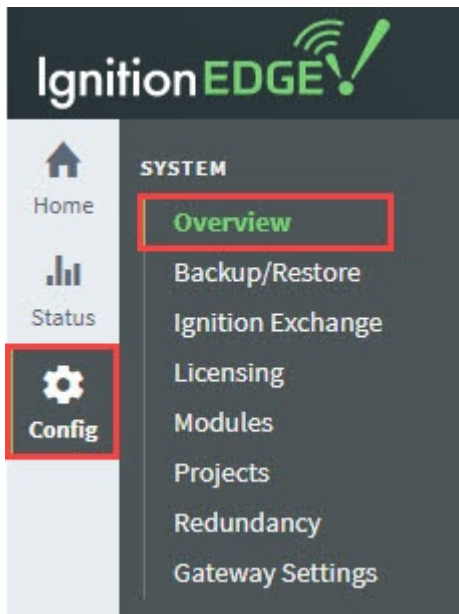
For more information, check out the documentation on the Cirrus Link website

<https://docs.chariot.io/display/CLD>.

Install IIoT Opto22 SNAP Pac Driver or the Emerson ROC Driver

To install the Opto22 SNAP Pac driver or Emerson ROC driver:

1. Download the driver you want from the [Inductive Automation](#) website.
2. Go to the **Config** tab of your Edge Gateway to access the **System > Overview** page.



3. Scroll down and click on **Install** or **Upgrade a Module...**
4. Next click on **Choose file**.
5. Navigate to the folder where you downloaded the driver(s) and select the file.
6. Click the **Install** button.
7. At the License agreement, select **I accept the terms in the License Agreement**, then click the **Accept License** button.

You'll now see a message indicating the driver module was successfully installed and the module is now available on the Module Configuration page in the Edge Gateway. For example, the following image shows the Opto22 SNAP Pac driver installed.

Cirrus Link Solutions LLC

[View Certificate](#)

Name	Version	Description
MQTT Transmission	4.0.3 (b2020012800)	An Ignition Tag to MQTT Bridge
Opto 22 groov EPIC and SNAP PAC Driver	4.0.3 (b2020012800)	A driver for communicating with groov EPIC and SNAP PAC series controllers

Edge Panel



Changed in 8.1.33

In addition to local visualization functionality, the Edge Panel product now comprises of everything in Ignition Edge IIoT, including **Compute**, **Sync Services**, and **EAM** features. Users with an existing Ignition Edge license and Upgrade Protection may have upgrades available, contact your account representative for more information.

Ignition Edge Panel enables standalone HMI functionality for one local Client and one remote Client at the edge of the network. Ignition Edge Panel gives you a choice between the **Vision** or **Perspective** modules. You can switch between the two visualization modules by modifying the **Visualization Module** setting on the **Edge Gateway**.

In addition to the Vision and Perspective modules, an Edge Panel license includes the **Web Browser module** (may require **manual installation**), and **Symbol Factory** library of images. During the trial period, Ignition Edge Panel is available to use but is limited to a resettable two-hour trial window.

Visualization Module

An Edge Gateway with the Panel product can launch either Perspective Sessions or Vision Clients, but not both. Ignition Edge Panel comes standard with the **Ignition Designer**.

Licensed Edge Gateways that don't have the product will refuse to launch either runtime. In addition, switching visualization to one module will fault the other, preventing the Designer from accessing resources to the faulted module (may require a Designer restart).

By default, the visualization module is Vision. To change the visualization module:

1. On the Edge Gateway go to **Config > Gateway Settings**.
2. Scroll down to the **Edge Settings** section.

Edge Settings	
Project Name	Edge The name of the default Edge project. Only one project can exist in an Edge gateway. (default: Edge)
Tag Provider Name	edge The name of the default Edge tag provider. Only one realtime tag provider can exist in an Edge gateway. (default: edge)
Historian Name	Edge Historian The name of the default Edge historian. Only one historian can exist in an Edge gateway. (default: Edge Historian)
Visualization Module	VISION The module to be used for client visualization. Only a single visualization module can be active on an Edge gateway. The setting is ignored if Panel is not part of the license. (default: VISION)

3. Under Visualization Module, click the Expand ▼ arrow then select the visualization module you want (Vision or Perspective).

Edge Settings	
Project Name	Edge The name of the default Edge project. Only one project can exist in an Edge gateway. (default: Edge)
Tag Provider Name	edge The name of the default Edge tag provider. Only one realtime tag provider can exist in an Edge gateway. (default: edge)
Historian Name	Edge Historian The name of the default Edge historian. Only one historian can exist in an Edge gateway. (default: Edge Historian)
Visualization Module	VISION VISION VISION PERSPECTIVE tion. Only a single visualization module can be active on an Edge gateway. The setting is ignored if Panel is not part of the license. (default: VISION)

4. Click **Save Changes**.

Running Vision on Panel

When the visualization module is set to Vision, only two Clients are allowed:

- One local Client that must run on the same system as the Edge Gateway.
- One Client that can be launched anywhere on the network.

Running Perspective on Panel

When the visualization module is set to Perspective, only two Sessions are allowed. Both Sessions can run on remote systems simultaneously. Attempting to open a third Session will cause a message to appear saying that the number of running Sessions has been exceeded.

Sessions Exceeded

The number of running client sessions has exceeded the permitted number.

LAUNCH GATEWAY

Ignition Maker Edition



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Getting Started with Maker

[Watch the video](#)

What Is Ignition Maker Edition?

Ignition Maker Edition is a community version of Inductive Automation's Ignition SCADA application. The Maker Edition enables hobbyists and those folks who want to explore and get inspired to build and automate their own projects in their home. Ignition Maker Edition is a free-license edition that can be strictly used for non-commercial and personal educational use. Users are free to make use of all the modules and features of the product while creating their own project.

NOTE

For educational institutions, Inductive Automation has other options for a classroom setting or senior projects. Please contact our [sales team](#) for more information on these options.

 Help ? [Get Designer](#)

[Home](#)
[Status](#)
[Config](#)

WELCOME TO IGNITION MAKER EDITION
Automate... Anything!



Get Started

1. Build It

The Ignition Designer is where your ideas come to life. Shared resources on the Exchange. Join our community forum to ask questions to get answers from automation professionals.

[Download the Designer](#)

2. Run It

Launch a Perspective session directly in your browser or download the native application. The Ignition Designer is where your ideas come to life. Shared resources on the Exchange.

[View Projects](#)

Join our community forum to ask questions & get answers from automation **professionals** and **hobbyists**

What Can Maker Edition Do?

Maker Edition can do almost anything standard Ignition can do. You can seamlessly connect all your data, design any kind of application with ease, and instantly web-deploy clients to anyone, anywhere — all from one platform.

How Maker Edition Compares to Standard Edition

Maker Edition differs from Standard Edition Ignition in the following ways:

- Maker licenses are free. Get one now in your [IA account](#).
- Maker Gateways can support a maximum of 10 Perspective sessions.
- The Perspective Workstation is not available for Maker Edition.
- Maker Gateways can run up to 10,000 Tags.
- In regards to redundancy, Maker Gateways can only be set to the [Independent](#) mode.
- **New in 8.1.4** As of 8.1.4, it is now possible to create remote Tag Providers and Tag history providers when the provider source is a Maker Gateway.

Ignition Maker Edition has limited module support. The table below represents Inductive Automation modules that are ready to use on Maker Gateways. Modules that aren't allowed to run on Maker will be removed during Maker's commissioning process.

Module Name	Description
Alarm Notification	Provides alarm notifications via email.
Allen-Bradley Driver Suite	Allen-Bradley driver suite for the OPC UA module.
Logix Driver	A driver for communicating with Allen-Bradley Logix5000 series PLCs, and includes firmware version 21 support.
Modbus Driver	A driver for communicating with devices via Modbus-TCP.
Omron Driver	Drivers for Omron PLCs.
OPC UA	Provides Ignition's OPC UA client and server functionality.
Perspective	A module that provides modern, responsive HTML based graphical interfaces for Ignition projects.
Reporting	Adds reporting capability.
Serial Support (Gateway)	Adds platform-level serial comm support and system.serial functions to Gateway-scoped scripts.
SFC	Sequential Function Charts are customizable logic execution environments.
Siemens Driver	Support for Siemens S7-300, S7-400 and S7-1200 drivers.
SQL Bridge	An OPC-to-SQL data logger and transaction manager.
Tag Historian	Turns any database into a powerful historian that can store and drive data in Maker Edition.
Twilio	Send SMS alarm notifications without a physical device allowing you to send SMS message via Python script.
UDP/TCP Driver	Drivers for receiving and parsing UDP or TCP packets.

Module Name	Description
Web Dev	Allows you to create and serve basic web resources and respond to web requests through scripting.

Third Party Modules

Module authors can allow their modules to run on Maker Edition. For more information, see the [module's documentation](#).

Ignition Cloud Edition



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Ignition Cloud Edition

[Watch the video](#)

Ignition Cloud Edition is a cloud architecture-based version of Ignition. Unlike standard Ignition and Ignition Edge, which are available as installable software on [Inductive Automation's downloads](#) page, Cloud Edition is available through major cloud computing marketplaces such as **Amazon Web Services (AWS)**.

Besides distribution, there are other key differences that distinguish Cloud Edition from standard Ignition or Edge, such as [device connectivity](#) and [module granularity](#).

Purchasing and Licensing

Unlike previous versions of Ignition, Cloud Edition is purchased through cloud marketplaces and not through Inductive Automation. Cloud Edition will instead detect that it is running in a paid image or container, and therefore already be licensed, negating needing to apply a license key to the Gateway.

AWS Partner Solutions

AWS offers automated reference deployments called Partner Solutions. There are two Partner Solutions available:

- Standalone
- Cluster

Both of these Partner Solutions have already been configured with regards to security, Gateway connections, and database connectivity. See the [Ignition by Inductive Automation on AWS](#) reference page for more information.

Core Functionality

Cloud Connectors

With Cloud Edition comes a new type of module called **Cloud Connectors**. These new modules are more focused on cloud infrastructure rather than locally installed software. The section below details the various Cloud Connectors available for Cloud Edition.

Cloud Connector	Description
 MongoDB	The MongoDB Connector Module allows Cloud Edition to connect to a MongoDB NoSQL database deployment. Several MongoDB Cloud Connector features include: • Taking aggregates from document data • Inserting, replacing, and deleting collection data • A MongoDB Perspective binding type

Redundancy

Two Cloud Edition Gateways can be set up with redundancy. Cloud Edition Gateways will only be able to failover to another Cloud Edition Gateway. It is recommended to set up redundancy between two Cloud Edition Gateways in different Availability Zones in case one Availability Zone fails.

Module Offerings

Cloud Edition comes standard with many of Inductive Automation's most popular modules, with the main exception being the Vision Module. The nature of Cloud Edition makes Perspective's web-based visualization system more suitable for cloud-based infrastructure and helps mitigate potential security risks. With some variations, the modules that are generally included in Cloud Edition are:

Module Name	Description
Alarm Notification	Provides alarm notifications via email.
Cirrus Link MQTT Distributor	Add an MQTT server that allows MQTT clients to connect to, publish, and subscribe to data.
Cirrus Link MQTT Engine	Adds bidirectional communication with edge-of-network devices through an MQTT server.
Cirrus Link MQTT Transmission	Publish data from edge of network Tag change events as MQTT messages.
EAM	Manage many Gateways from a central Gateway.
OPC UA	Provides OPC UA server and OPC UA client functionality. Device drivers are not included in Cloud Edition's OPC-UA module.
Perspective	A module that provides modern, responsive HTML based graphical interfaces for Ignition projects.
Reporting	Adds reporting capability.
SFC	Sequential Function Charts are customizable logic execution environments.
SQL Bridge	An OPC-to-SQL data logger and transaction manager.
Symbol Factory	Includes almost 4000 Scalable Vector Graphics (SVGs), making designing projects easier and smoother.
Tag Historian	Turns any database into a powerful historian that can store and drive data.
Twilio Notification	Send SMS alarm notifications without a physical device, allowing to send SMS message via Python script.
Web Dev	Allows you to create and serve basic web resources and respond to web requests through scripting.

NOTE

IA modules that are not included with Cloud Edition cannot be licensed. Third party modules can still be added and licensed on Cloud Edition platforms.

Ignition Cloud Edition Compared with Ignition

Since Ignition Cloud Edition is more focused on cloud architecture compared to the standard version of Ignition, there are some features that differ in Cloud Edition compared to standard Ignition. The following sections detail some of these differences.

Device Connectivity

Cloud Edition does not include any industrial device drivers to connect directly to PLCs. For security reasons, it is architecturally inadvisable to connect to a PLC or industrial device from a cloud infrastructure. However, MQTT tools are available to publish device telemetry to Cloud Edition.

Module Granularity

Unlike a standard version of Ignition where you choose which modules you want to include, Cloud Edition comes with a packaged set of modules. See the [Module Offerings section](#) for more information.

Availability and Commissioning

Since Cloud Edition will be available through major cloud computing platforms, this means that Cloud Edition will not appear as an option in the normal commissioning process during which users select which version of Ignition they are working with.

Cloud Edition Gateway

In a Cloud Edition installation, there are visual changes to the Gateway, with some pages being different or removed. For example, one of the visual changes include blue Cloud Edition logos instead of traditional orange Ignition logos. See the [Cloud Edition Gateway](#) page for more information.

Cloud Edition Behavior with Ubuntu

Starting in Ubuntu 24.04, the `unattended-upgrades` package is enabled by default, with the `needrestart` utility configured to automatically restart services when a related package is patched. If you are running Cloud Edition on an Ubuntu 24.04+ virtual machine, Ignition will be included with these services, causing it to automatically restart if the `needrestart` utility's requirements are met.

While this behavior comes default with Ubuntu, users can opt out by following the steps below to add an exception to the `needrestart` utility.

1. Navigate to `/etc/needrestart/needrestart.conf` in the file system.
2. Add `qr(^ignition\service$) => 0` to the `$nrconf{override_rc}` section.
3. Save the file.

AMI Access Instructions - AWS

Prerequisites

Before launching your instance, you will need to configure the instance's network settings and add an inbound security group rule:

1. Under Network Settings, click **Edit**.
2. Verify that you are using the correct VPC and Subnet.
3. Enable **Auto-assign public IP**.
4. Select **Create security group**.
5. Click **Add security group rule**.
6. Set the Type to **HTTP**. This will expose port **80**, one of the default Gateway ports.

DEFAULT PORTS

Default ports for accessing the Ignition Cloud Gateway are located at ports **80** and **443**.

7. Configure the Source type to specify which IP addresses can access this port.

Gateway Access

Once you have configured and launched your instance, you can access and commission your new Gateway from the **EC2 Dashboard > Instances**:

1. Select the Ignition Cloud Edition instance.
2. Under the **Details** tab, locate the instance's **Public IPv4 address**.

Reserved Instances
Dedicated Hosts
Scheduled Instances
Capacity Reservations

▼ Images
AMIs
AMI Catalog

▼ Elastic Block Store
Volumes
Snapshots
Lifecycle Manager

▼ Network & Security

Instance: i-0ca3e99c14b00e45f (tchaney-ignition-cloud)

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

▼ Instance summary [Info](#)

Instance ID
i-0ca3e99c14b00e45f (tchaney-ignition-cloud)

IPv6 address
-

Hostname type
IP name: ip-10-0-2-46.us-west-2.compute.internal

Answer private resource DNS name
-

Public IPv4 address
54.245.215.77 | [open address](#)

Instance state
Running

Private IP DNS name (IPv4 only)
ip-10-0-2-46.us-west-2.compute.internal

Instance type
t2.medium

3. Copy the address.

4. In a new tab, paste the address and specify port `80`:

```
54.245.215.77:80
```

5. Hit **Enter**.

6. When prompted, choose the username and password for your admin user.

7. Click **Finish Setup**. You will now be redirected to the [Cloud Edition Gateway](#).

Now that you've accessed your Cloud Gateway, you can download the [Designer Launcher](#) and start working on projects. Follow the steps to [add a Designer](#) for your Cloud Gateway just like you would for any other edition of Ignition.

Creating an EC2 Instance Using the Ignition Cloud Edition AMI

Launch From AWS Marketplace

1. Go to the [AWS Marketplace](#) and search for **Ignition Cloud Edition**.
2. Select the [Ignition Cloud Edition AMI](#).



Ignition Cloud Edition

By [Inductive Automation](#) | Ver 8.1.27

Starting from **\$0.91/hr** or from **\$5,200.00/yr** (35% savings) for software + AWS usage fees

Ignition Cloud Edition combines the power of the most effective industrial software and the convenience of the world's most trusted cloud computing services. Cloud Edition is a cloud platform complement to extend your Standard Ignition on-premise platform.

Purchased and installed through the AWS...

3. Once on the Ignition Cloud Edition AMI product page, click on **Continue to Subscribe**.



Ignition Cloud Edition

By: [Inductive Automation](#) Latest Version: 8.1.27

Ignition Cloud Edition makes it easy to add the power of the cloud to your Ignition on-premise installations. Extend your enterprise operations, leverage elastic

[Show more](#)

Linux/Unix

Continue to Subscribe

Save to List

Typical Total Price
\$2.122/hr

Total pricing per instance for services hosted on m6i.xlarge in US East (N. Virginia). [View Details](#)

4. You will be prompted to accept the terms of the EULA. Click **Accept Terms**.

By subscribing to this software, you agree to the pricing terms and the seller's [End User License Agreement \(EULA\)](#). You also agree and acknowledge that AWS may, on your behalf, share information about this transaction (including your payment terms) with the respective seller, reseller or underlying provider, as applicable, in accordance with the [AWS Privacy Notice](#). AWS will issue invoices and collect payments from you on behalf of the seller through your AWS account. Your use of AWS services is subject to the [AWS Customer Agreement](#) or other agreement with AWS governing your use of such services. If you are receiving a private offer from a channel partner, you may click [here](#) (for CPPO transaction) or [here](#) (for SPPO transaction) for more information on the channel partner.

Accept Terms

5. After AWS has fulfilled your subscription request, click on **Continue to Configuration**.



Ignition Cloud Edition

Continue to Configuration

6. You will have options to select the fulfillment option, version, and region to launch the software. In most cases, you won't need to change any settings. Make your selections, then click **Continue to Launch**.

Configure this software

Choose a fulfillment option and software version to launch this software.

Fulfillment option

64-bit (x86) Amazon Machine Image (AMI) ▼

Software version

8.1.27 (Apr 06, 2023) ▼

Region

US East (N. Virginia) ▼

Use of Local Zones or WaveLength infrastructure deployment may alter your final pricing.

Ami Id: ami-04f2c8c12fa668110

Product Code: egfci1mqqvpcddavghlc958d

[Release notes \(updated April 6, 2023\)](#)

- On the "Launch this software" page, you can quickly set up many essential services your EC2 instance will need to function properly. In this example however, we will select **Launch through EC2** under the Choose Action dropdown, and then click **Launch**.



Ignition Cloud Edition

[< Product Detail](#) [Subscribe](#) [Configure](#) [Launch](#)

Launch this software

Review the launch configuration details and follow the instructions to launch this software.

Configuration details

Fulfillment option

64-bit (x86) Amazon Machine Image (AMI)

Ignition Cloud Edition

running on m6i.xlarge

Software version

8.1.27

Region

US East (N. Virginia)

[Usage instructions](#)

Choose Action

Launch through EC2



Choose this action to launch your configuration through the Amazon EC2 console.

Launch

NOTE

Although we can directly launch our Cloud Edition EC2 instance from this page, launching from the EC2 service will make it easier to set up other necessary elements, such as a VPC, subnet(s), and more. Additionally, the EC2 console contains other advanced settings you may be interested in configuring.

8. You will be taken to your EC2 Service in a new tab, where you can fill out information about your new EC2 instance. Begin by giving your EC2 instance a name.

Name and tags [Info](#)

Name

testEC2

[Add additional tags](#)

NOTE

Since we started creating the EC2 instance from the AWS Marketplace, the **Application and OS Images** section will already be filled out.

9. Select the Instance Type you want your EC2 instance to use. In this example, we are using the default selection of **m6i.xlarge**.

▼ Instance type [Info](#)

Instance type

m6i.xlarge

Family: m6i 4 vCPU 16 GiB Memory Current generation: true

☒ All generations

[Compare instance types](#)

The AMI vendor recommends using a m6i.xlarge instance (or larger) for the best experience with this product.

10. Select the key pair you want to use or create a new key pair. Alternatively, you can omit using a key pair, but for security purposes, this is not recommended.

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

Proceed without a key pair (Not recommended)

Default value ▼



[Create new key pair](#)

11. Next, configure your network settings. For more information on configuring these settings, see the [Cloud Edition - AWS Networking and Security](#) page.

12. Choose the amount of storage you want for your Root volume and EBS volume(s). You can also add or remove volumes as needed.

▼ Configure storage [Info](#)

[Advanced](#)

1x GiB ▼ Root volume (Not encrypted)

1x GiB ▼ EBS volume (Not encrypted)

[Remove](#)

[Add new volume](#)

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

0 x File systems

[Edit](#)

13. You can set up additional advanced settings under **Advanced details**. Once you are done, go to the **Summary** section to get a quick glimpse at the new EC2 instance's configuration, then click **Launch instance**.

▼ Summary

Number of instances [Info](#)

1

Software Image (AMI)

ignition-cloud-ubuntu-x64-8.1....[read more](#)

ami-04f2c8c12fa668110

Virtual server type (instance type)

m6i.xlarge

Firewall (security group)

New security group

Storage (volumes)

2 volume(s) - 66 GiB

Cancel

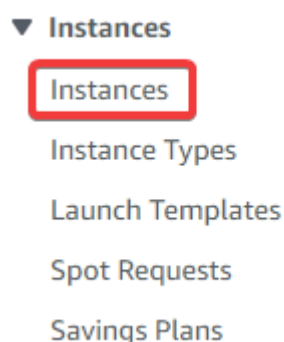
Launch instance

[Review commands](#)

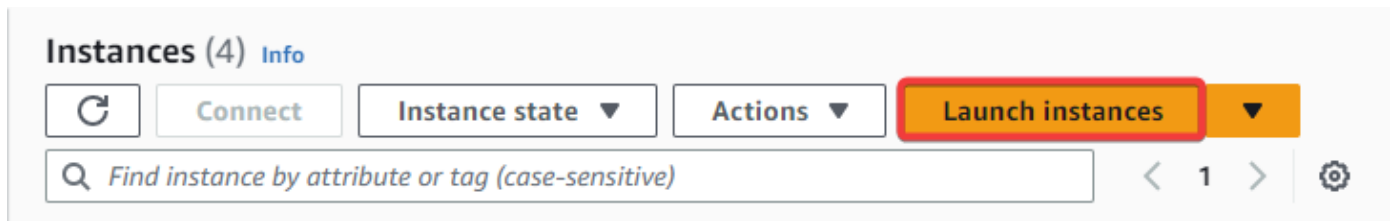
14. AWS will attempt to create your EC2 instance. Once complete, a green Success banner will show at the top of your page. To find your new EC2 instance, go back to the EC2 service in your AWS console, and click on **Instances**.

Launch From EC2 Service

1. Go to the EC2 Service in your AWS Console.
2. Click on **Instances** under the Instances section.



3. Click on **Launch instances**.



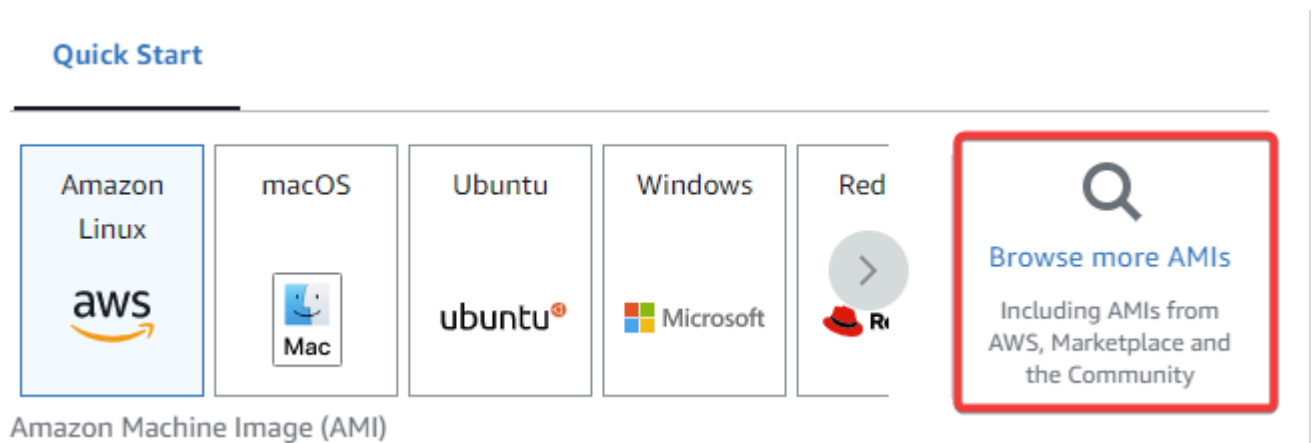
4. You will be taken to a page to fill out information about your new EC2 instance. Start by choosing a name.

Name and tags [Info](#)

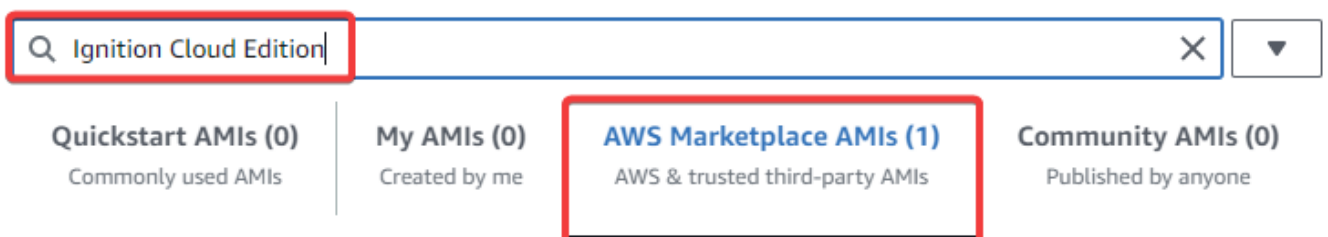
Name

testEC2 [Add additional tags](#)

5. Next, you will need to select Inductive Automation's Cloud Edition AMI. In the Application and OS Images (Amazon Machine Image) section, click on **Browse more AMIs**.



6. To find the official IA Cloud Edition AMI, enter "Ignition Cloud Edition" in the search bar at the top. The AMI will be listed under **AWS Marketplace AMIs**.



7. Once you have located the Ignition Cloud Edition AMI, click **Select**, then **Continue**.



Ignition Cloud Edition

By [Inductive Automation](#) | Ver 8.1.27

Starting from \$0.91/hr or from \$5,200.00/yr (35% savings) for software + AWS usage fees

Ignition Cloud Edition combines the power of the most effective industrial software and the convenience of the world's most trusted cloud computing services. Cloud Edition is a cloud platform complement to extend your Standard Ignition on-premise platform. Purchased and installed through the AWS...

Select

8. You will be brought back to the EC2 creation form. From here, select the Instance type you want to use. In this example, we will leave the default selection of **m6i.xlarge**.

▼ Instance type [Info](#)

Instance type

m6i.xlarge

Family: m6i 4 vCPU 16 GiB Memory Current generation: true

☐ All generations

[Compare instance types](#)

The AMI vendor recommends using a m6i.xlarge instance (or larger) for the best experience with this product.

9. Select the key pair you want to use. You can also create a new key pair, or not use a key pair at all. In our example, we will **Proceed without a key pair**.



TIP

For security purposes, we recommend that you use a key pair when creating your EC2 instance.

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

Proceed without a key pair (Not recommended)

Default value ▼



[Create new key pair](#)

10. You will then need to configure your network settings. For more information on configuring these settings, see the [Cloud Edition - AWS Networking and Security](#) page.
11. Configure the amount of storage you want for your Root volume and EBS volume(s). You can also add or remove volumes.

▼ Configure storage [Info](#)

[Advanced](#)

1x GiB ▼ Root volume (Not encrypted)

1x GiB ▼ EBS volume (Not encrypted)

Remove

Add new volume

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

0 x File systems

[Edit](#)

12. Configure any advanced settings you'd like under **Advanced details**, then proceed to the **Summary** section. Once you are satisfied with the selections, click **Launch instance**.

▼ Summary

Number of instances [Info](#)

1

Software Image (AMI)

Ignition Cloud Edition
ami-04f2c8c12fa668110

Virtual server type (instance type)

m6i.xlarge

Firewall (security group)

New security group

Storage (volumes)

2 volume(s) - 66 GiB

Cancel

Launch instance

[Review commands](#)

13. AWS will now create your EC2 instance. Once complete, a green Success banner will show at the top of your page. To find your new EC2 instance, go back to the EC2 service in your AWS console, and click on **Instances**.

Cloud Edition - AWS

Networking and Security

This page details various networking and security settings you may need to configure for your Cloud Edition EC2 instance.

Basic Networking and Security Requirements

When creating an EC2 instance and launching Cloud Edition, there are some networking and security configurations you need to define, such as opening the specific ports Ignition uses. See the [Configuring Security Groups](#) section for more details on allowing traffic through ports.

The following is a list of configurable items you typically need when connecting to a Cloud Edition EC2 instance. Note that this is not a comprehensive list; it is meant to show the fundamental features that you need to set up for your EC2 instance. See the official [AWS documentation](#) for a full list of VPC features you can utilize in your architecture.

- Virtual private clouds (VPC)
- Subnet
- IP addressing
- Routing (route tables)
- A way to route traffic

Examples

The following examples show how to configure the bulleted items in the [Basic Networking and Security Requirements](#) section above. These examples are demonstrative, and may not reflect how you want to configure your own network and security.

Virtual Private Clouds (VPC)

Your AWS region will likely have a default VPC. While you can use the default VPC for your EC2 instance, the steps below will help guide you through creating a dedicated VPC.

1. Go to the VPC Service in your AWS Console, and click on **Create VPC**.

Your VPCs (5) Info

↺

Actions ▾

Create VPC

🔍 Filter VPCs

< 1 >

⚙️

NOTE

In addition to the VPC, you can customize Availability Zones, public and private subnets, endpoints, and more here. In this example however, we will only be configuring the VPC.

2. Configure the VPC settings you want. We are only using an IPv4 CIDR block, and not IPv6, so our configuration below is fine as is. Once you are done, click **Create VPC**.

Create VPC [Info](#)

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.

VPC settings

Resources to create [Info](#)

Create only the VPC resource or the VPC and other networking resources.

☒ VPC only

☐ VPC and more

Name tag - *optional*

Creates a tag with a key of 'Name' and a value that you specify.

testVPC

IPv4 CIDR block [Info](#)

☒ IPv4 CIDR manual input

☐ IPAM-allocated IPv4 CIDR block

IPv4 CIDR

10.0.0.0/24

IPv6 CIDR block [Info](#)

☒ No IPv6 CIDR block

☐ IPAM-allocated IPv6 CIDR block

☐ Amazon-provided IPv6 CIDR block

☐ IPv6 CIDR owned by me

Tenancy [Info](#)

Default

Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key

Q Name



Value - *optional*

Q testVPC



Remove

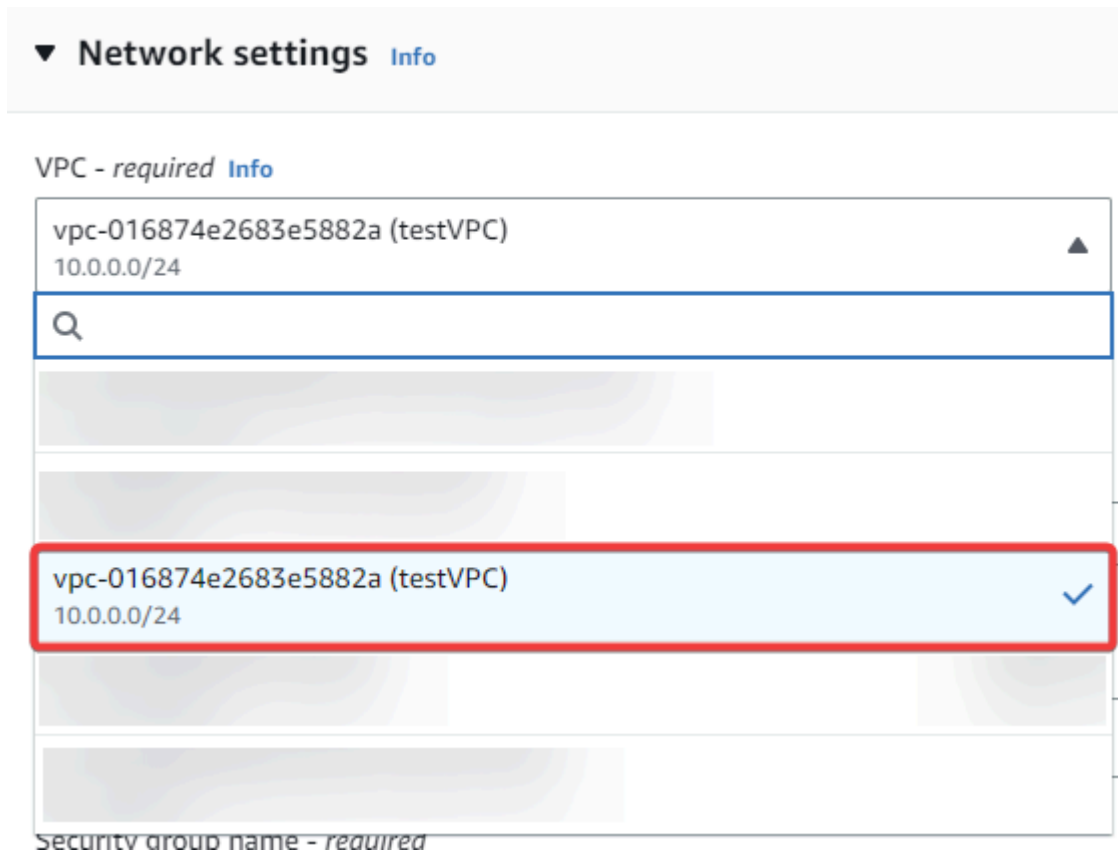
Add new tag

You can add 49 more tags.

Cancel

Create VPC

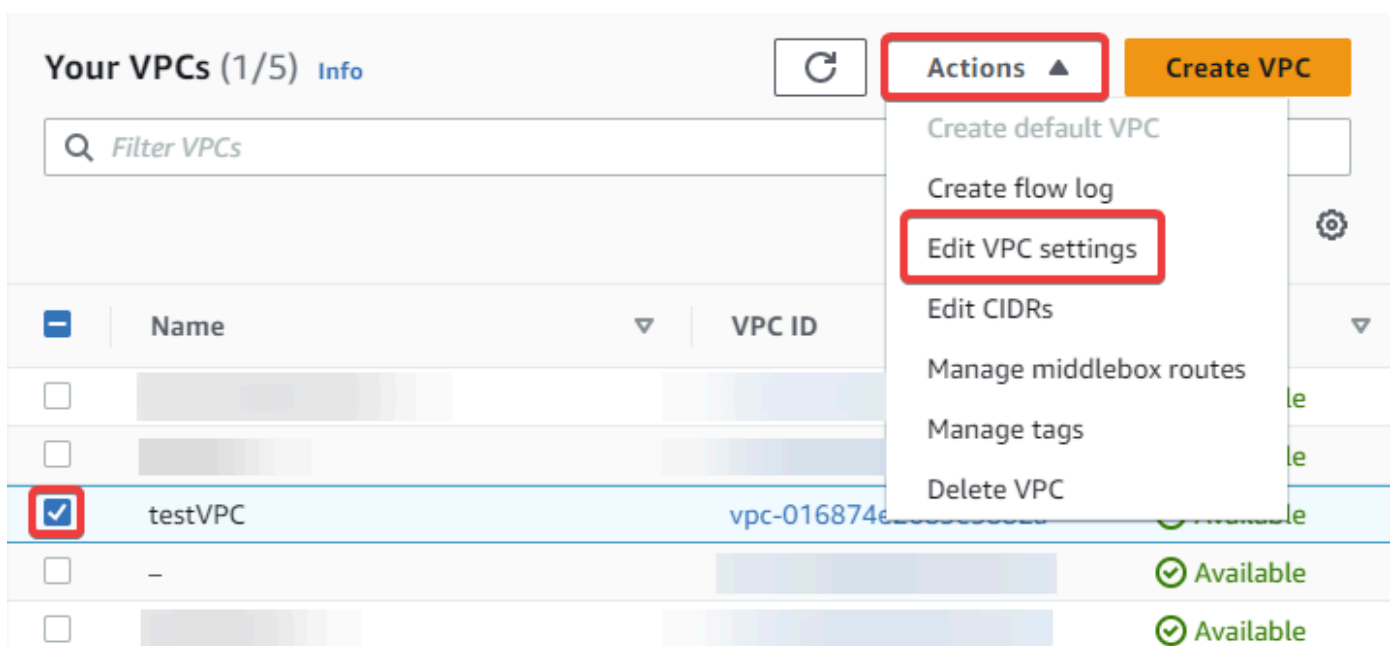
3. You should now be able to select your newly created VPC when creating your EC2 instance.



Enabling DNS Hostnames and DNS Resolution

If you created your VPC only like in the example above, you may also need to enable DNS hostnames and/or DNS resolution. The steps below show how to enable DNS hostnames and resolution after you create your VPC.

1. Go to the VPC Service in your AWS Console.
2. Select your VPC, then click on **Actions** on the top left, followed by **Edit VPC settings**.



3. Enable DNS resolution and DNS hostnames, then click **Save**.

VPC details

VPC ID	Name
 vpc-016874e2683e5882a	 testVPC

DHCP settings

DHCP option set [Info](#)

dopt-0cc275d4f826d9492 ▼

DNS settings

☒ Enable DNS resolution [Info](#)

☒ Enable DNS hostnames [Info](#)

Network Address Usage metrics settings

☐ Enable Network Address Usage metrics [Info](#)

Cancel

Save

Creating Subnets

1. Go to the Subnets Service in your AWS Console.
2. Click on **Create subnet**.

Subnets (11) [Info](#)

 Actions ▼

Create subnet

 Filter subnets

< 1 > 

3. Select the VPC to create the subnet in.

VPC

VPC ID

Create subnets in this VPC.

vpc-016874e2683e5882a (testVPC) ▲

Q |

vpc-016874e2683e5882a (testVPC)
10.0.0.0/24

4. You will be prompted to configure the settings for your subnet. Fill out the form, then click **Create subnet**.

Subnet 1 of 1

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

IPv4 CIDR block [Info](#)

▼ Tags - optional

Key

Value - optional

You can add 49 more tags.

Configuring Security Groups (IP Addresses and Ports)

You may need to create inbound or outbound rules in the security group your instance is using to allow network traffic through your firewall.

NOTE

Ignition Cloud Edition will default to using port 80 if not using SSL and port 443 when using SSL, instead of ports 8088 and 8043, respectively. See the [Gateway Port Reference](#) page for more

information on webserver ports.

Inbound and Outbound Rules

The following example shows how to configure your security group to allow traffic. While you can configure security group rules when creating an EC2 instance, we will configure rules through the Security Groups console.

NOTE

Security groups allow all outgoing traffic by default, including incoming traffic in response to outgoing traffic. You will not be able to configure outbound rules when creating a new EC2 instance; however you will be able to configure outbound rules on the security group itself, as demonstrated below.

1. Go to the EC2 Service in your AWS Console.
2. Click on **Security Groups** under the Network & Security section.

▼ Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

NOTE

You can also set up security groups when creating your EC2 instance.

3. All your available security groups should show up as a list. Click on either the security group ID of the security group you want to modify, or check its checkbox to select it.

Security Groups (1/7) Info			
Filter security groups			
☐	Name ▾	Security group ID ▾	Security group name ▾
☐	–	sg-068e08ccc2fe1e5f4	default
☐	–	sg-0af0df6e697db993a	launch-wizard-3
☐	–	sg-03ee54ca89bb744e3	default
☒	–	sg-0c827a04b1141ebde	launch-wizard-4
☐	–	sg-07d41c3b6061990e8	launch-wizard-2
☐	–	sg-02d23ee73d699e841	launch-wizard-5
☐	–	sg-04a21d401aa2515e7	launch-wizard-1

4. You should have a few tabs to select from, including **Inbound Rules** and **Outbound Rules**. Click on the tab you want to edit the rules for, and then click on the applicable edit button.

sg-0c827a04b1141ebde - launch-wizard-4

[Details](#)
[Inbound rules](#)
[Outbound rules](#)
[Tags](#)

Inbound rules (4)

Filter security group rules

☐	Name ▾	Security group rule... ▾	IP version ▾	Type ▾
☐	–	sgr-02b905d9f31212c98	IPv4	Custom TCP
☐	–	sgr-03948004d796d0...	IPv4	SSH
☐	–	sgr-0a2f47d60b741accb	IPv4	HTTP
☐	–	sgr-0c64c7bbd54129a...	IPv4	HTTPS

5. Configure, add, remove, or modify your rules. Once you are finished, click on **Save rules**.

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
sgr-02b905d9f31212c98	Custom TCP ▼	TCP	8060	Custom ▼ 0.0.0.0/0		Delete
sgr-03948004d796d0b9c	SSH ▼	TCP	22	Custom ▼ 0.0.0.0/0		Delete
sgr-0a2f47d60b741accb	HTTP ▼	TCP	80	Custom ▼ 0.0.0.0/0		Delete
sgr-0c64c7bbd54129a56	HTTPS ▼	TCP	443	Custom ▼ 0.0.0.0/0		Delete

i NOTES

- The screenshot above shows a rule configuration where all IP traffic is allowed. For security purposes, we recommend configuring your rules to allow only trusted IP addresses.
- A Custom TCP rule is required to allow Gateway Network traffic, which uses port 8060.

6. Your security group should now be using the updated rules and allow traffic flow through the specified ports.

Route Tables

Route tables are created automatically when you create your VPC. You can also create multiple custom route tables for a single VPC.

1. Go to the Route tables service in your AWS Console
2. Click on **Create route table**.

Route tables (4) Info

Actions ▼

< 1 >

3. You will be prompted to give your route table an optional name and select the VPC to use for your route table. Complete the form and click on **Create route table**.

Route table settings

Name - *optional*
Create a tag with a key of 'Name' and a value that you specify.

testRouteTable

VPC
The VPC to use for this route table.

vpc-016874e2683e5882a (testVPC) ▲

Q

vpc-016874e2683e5882a (testVPC) ✓

Q Name X Q testRouteTable X

Remove

Add new tag

You can add 49 more tags.

Cancel Create route table

Internet Gateway

Internet gateways allow traffic and communication between your VPC and the internet.

NOTE

This example uses internet gateways, which are easy to set up but may be less secure than other options. For security purposes, you may want to explore different methods of connecting to the internet. See the [official AWS documentation](#) for connectivity options.

1. Go to the Internet gateway service in your AWS Console.
2. Click on **Create internet gateway**.

Internet gateways (2) [Info](#)

 **Actions** ▼ **Create internet gateway**

< 1 > 

3. Name your internet gateway, then click **Create internet gateway**.

Internet gateway settings

Name tag
Creates a tag with a key of 'Name' and a value that you specify.

Tags - optional
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key

Value - optional

Remove

Add new tag
You can add 49 more tags.

Cancel **Create internet gateway**

4. Your internet gateway is now created, but is detached from your VPC. To attach your internet gateway, go back to the Internet gateway service.
5. Select your internet gateway, then click on **Actions**, followed by **Attach to VPC**.

The screenshot shows the 'Internet gateways (1/3)' page in the AWS console. At the top, there is a search bar with the placeholder 'Filter internet gateways'. To the right of the search bar is a 'Create internet gateway' button. Below the search bar is a table of internet gateways. The first row is selected, and its 'Actions' menu is open. The 'Attach to VPC' option is highlighted in the menu.

	Name	Internet gateway	State
☒	testInternetGateway	igw-03eed4d0fe2a2203b	Detached
☐	-	igw-059bf1dcc8ae05b24	Attached
☐	baulGW	igw-09d166cf1f1b2bc3b	Attached

6. Select the VPC you want to attach the internet gateway to, then click **Attach internet gateway**.

The screenshot shows the 'VPC' section of the AWS console. It contains a heading 'VPC' and a subheading 'Attach an internet gateway to a VPC to enable the VPC to communicate with the internet. Specify the VPC to attach below.' Below this is a section titled 'Available VPCs' with the instruction 'Attach the internet gateway to this VPC.' There is a search bar with the placeholder 'Select a VPC'. Below the search bar is a list of VPCs. The first VPC, 'vpc-016874e2683e5882a - testVPC', is selected. At the bottom right of the dialog, there are 'Cancel' and 'Attach internet gateway' buttons.

Creating a Gateway Network (AWS Instances)

After configuring your security group's inbound and outbound rules, ports, network and security, you can create a Gateway Network with two Cloud Edition Gateways hosted on AWS.

1. Go to the EC2 Service in your AWS Console.
2. Click on **Instances** under the Instances section.

▼ Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

3. Select the target AWS instance you want to connect to by clicking on the target's checkbox. Information about the instance should populate on the bottom.

Instances (1/4) Info			
Find instance by attribute or tag (case-sensitive)			
	Name ▼	Instance ID	Instance state ▼
☐	Ignition-Test-2	i-01aa62aa8dbd1e8ea	Running
☐	ignition-test-bau-2	i-0d1bdb35653860874	Running
☐	Ignition-Test	i-02a325f5a02817257	Running
☒	ignition-test-bau	i-01821a4fb385e4d2b	Running

4. On the **Details** tab, make a note of your target Gateway's IP address, then go to the Gateway you want to make the outgoing connection from.

Instance: i-01821a4fb385e4d2b (ignition-test-bau)

Details

Security

Networking

Storage

Status checks

Monitoring

Tags

▼ Instance summary Info

Instance ID	Public IPv4 address
i-01821a4fb385e4d2b (ignition-test-bau)	open address
IPv6 address	Instance state
—	Running

5. On the Gateway that will be making the outgoing connection, go to the Gateway webpage's **Config** page > **Networking** > **Gateway Network** > **Outgoing Connections** > **Create new Outgoing Gateway Connection...**

General Settings		Outgoing Connections	Incoming Connections	Diagnostics	Queue Management	
Host	Port	Enabled	Description	Gateway Name	Redundancy Role	Status
No Outgoing Gateway Connections						
→ Create new Outgoing Gateway Connection...						

- Fill out the Gateway Network Settings page using the information you gathered from your AWS instance, then click **Create New Outgoing Gateway Connection**.

Main	
Host	 The address of the remote server, not including the port.
Port	8000 The port of the remote server.
Connection Timeout	10000 The maximum time, in milliseconds, allowed to connect to a remote machine. (default: 10,000)
HTTP Read Timeout	60000 The maximum time, in milliseconds, allowed to read or send HTTP data to a remote machine. (default: 60,000)

Create New Outgoing Gateway Connection

- After setting up your Outgoing Connection, navigate to the target Gateway's **Config** page > **Networking** > **Gateway Network** > **Incoming Connections**. The target Gateway should have an Incoming Connection request from the outbound Gateway. Click on **approve** to approve the certificate, then **Confirm**.

General Settings

Outgoing Connections

Incoming Connections

Diagnostics

Queue Management

Remote Certificates

Common Name	Serial	Issuer	Status	
:8060		Self	Not Approved	approve delete

Id	Security	Certificate	Gateway Name	Redundancy Role	Status
No Incoming Gateway Connections					

→

- The outbound Gateway will now show up under the certificate. Click on **More**, then **approve**, then **Confirm**.
- The Gateway will take a few seconds to establish the connection. If you run into any issues creating your Gateway Network, contact the [Support Department](#).

Image Access Instructions - Azure

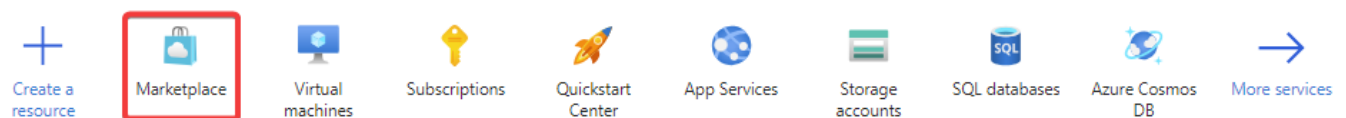
Creating a Virtual Machine Using the Ignition Cloud Edition Image

Similar to AWS, you can create a virtual machine (VM) using the Cloud Edition Image available on the Azure Marketplace. The instructions below demonstrate how to create an Azure virtual machine running Cloud Edition.

Create a Virtual Machine from the Azure Marketplace Listing

1. Access your Azure console.
2. Click on **Marketplace**.

Azure services



3. In the Azure Marketplace, search for "Ignition Cloud Edition". Click on the **Ignition Cloud Edition** image.



If you've created a virtual machine from the Ignition Cloud Edition Image before, steps 4 and 5 may not appear. In this case, skip to step 6.

4. On the Ignition Cloud Edition page, click **Get it Now**.



Ignition Cloud Edition [Save to my list](#)

Inductive Automation

Overview

[Plans + Pricing](#)

[Ratings + reviews](#)

Easily add the power of the cloud to Ignition and extend enterprises with this pay-as-you-go model.

Get It Now

Ignition Cloud Edition combines the power of the most effective industrial software and the convenience of the world's most trusted cloud computing services. Ignition Cloud Edition is a cloud platform complement to extend your Standard Ignition on-premise platform. Purchased and installed through the Microsoft Azure Marketplace, it's hosted on Azure's secure cloud platform and billed on a periodic basis for time used.

5. Click **Continue** on the Azure popup.

Create this app in Azure



Ignition Cloud Edition

By Inductive Automation

Software plan

Ignition Cloud Edition

Pricing: Starting at \$0.91/hour

Details: Ignition Cloud Edition is a pay-as-you-go, driverless edition of Ignition, with a set of pre-loaded modules.

This app requires some basic profile information. You have provided the information already so you're good to go! [Edit](#)

By clicking "Continue", I grant Microsoft permission to share my supplied contact information with the provider so that they can contact me regarding this product and related products. The shared information will be handled in accordance with the provider's [terms](#) and [privacy statement](#).

Continue

6. Click **Create** on the information page.



Ignition Cloud Edition [Remove from Favorites](#)

Inductive Automation | Virtual Machine

Plan

Ignition Cloud Edition

Create

[Start with a pre-set configuration](#)

[Purchase a reservation](#)

7. You will be taken to the **Create a virtual machine** page. Complete the prompts to create your VM. For specific guidance through this form, see the [Virtual Machine Creation Process Example](#) section below. Once complete, click on **Review + create**.

8. Azure will begin creating your requested resources. After your resources are finished building, click on **Go to resource** under **Next steps** to go to your VM overview.

 Delete  Cancel  Redeploy  Download  Refresh

✓ Your deployment is complete

Deployment name: CreateVm-inductiveautomationllc16752682122...

Subscription: [Training Division](#)

Resource group: [ignitioncloud-build-training-rg](#)

Start time: 8/15/2023, 12:21:48 PM

Correlation ID: 7eee6c7f-57f8-4afe-9bd7-9df1f9ce8d4d 

∨ Deployment details

∧ Next steps

[Setup auto-shutdown](#) Recommended

[Monitor VM health, performance and network dependencies](#) Recommended

[Run a script inside the virtual machine](#) Recommended

[Go to resource](#)

[Create another VM](#)

Create a Virtual Machine From Your Recently Created

NOTE

This method assumes that you have already created a previous virtual machine using the Azure Marketplace Cloud Edition Image.

1. Access your Azure console.
2. Click on **More services**.

Azure services


[Create a resource](#)


Virtual machines


Subscriptions


Quickstart Center


App Services


Storage accounts


SQL databases


Azure Cosmos DB


Kubernetes services


[More services](#)

3. Click **Marketplace** under the General section.

General (24)



All resources



Deploy a custom template



Management groups



Marketplace



Recent

- Click on **Recently created** in the My Marketplace section.

My Marketplace

Favorites

Recently created

Private plans

- Click on the **Ignition Cloud Edition** image.



Ignition Cloud Edition

Inductive Automation

Virtual Machine

Easily add the power of the cloud to Ignition and extend enterprises with this pay-as-you-go model.

Starts at
\$0.91/user/1 year

Create 



- On the Image Description page, click **Create**. This will open a wizard for you to enter details about your new VM.



Ignition Cloud Edition [Remove from Favorites](#)

Inductive Automation | Virtual Machine

Plan

Ignition Cloud Edition

Create

Start with a pre-set configuration

Purchase a reservation

Want to deploy programmatically? [Get started](#)

7. Complete the prompts to create your VM. For specific guidance through this form, see the [Virtual Machine Creation Process Example](#) section below. Once complete, click on **Review + create**.

NOTE

Since we started creating the VM from the image that is already located in our Subscription, we do not need to manually select a Subscription or Resource Group during this process.

8. Azure will begin creating your requested resources. After your resources are finished building, click on **Go to resource** under **Next steps** to go to your VM overview.

Delete Cancel Redeploy Download Refresh

Your deployment is complete



Deployment name : CreateVm-8.1.27-20230622110131

Subscription : [Training Division](#)

Resource group : [ignitioncloud-build-training-rg](#)

Start time : 6/22/2023, 12:53:47 PM

Correlation ID : be8b14c9-0570-4937-b709-e8a869c032eb

> Deployment details

✓ Next steps

Go to resource

9. From the VM overview page, copy the public IP address and paste it in a different tab to access the Gateway.

Virtual Machine Creation Process Example

This section demonstrates how to configure various settings when creating your VM.

1. The **Basics** page contains many fundamental properties, explained below.

- i. Begin by selecting your Subscription and Resource Group in the **Project details** section.

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ	Training Division ▼
Resource group * ⓘ	ignitioncloud-build-training-rg ▼

[Create new](#)

- ii. In the **Instance details** section, fill out the required fields (name, region, image, and size), and configure any other settings you'd like. The image you select should be called **Ignition Cloud Edition**.

Instance details

Virtual machine name * ⓘ	test-example ✓
Region * ⓘ	(US) West US 3 ▼
Availability options ⓘ	No infrastructure redundancy required ▼
Security type ⓘ	Standard ▼
Image * ⓘ	Ignition Cloud Edition - x64 Gen2 ▼

[See all images](#) | [Configure VM generation](#)

VM architecture ⓘ

☐ Arm64

☒ x64

i Arm64 is not supported with the selected image.

Run with Azure Spot discount ⓘ ☐

Size * ⓘ	Standard_DS1_v2 - 1 vcpu, 3.5 GiB memory (\$705.91/month) ▼
----------	---

[See all sizes](#)

- iii. In the **Administrator account** section, you can choose what kind of authentication you want to use, along with other security features.

Administrator account

Authentication type ⓘ

☒ SSH public key

☐ Password

i Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Username * ⓘ

testExampleUser ✓

SSH public key source

Generate new key pair ▼

Key pair name *

test-example_key ✓

2. The **Disks** page will allow you to configure various storage elements, such as encryption and adding more data disks. The only settings we will change in this example are checking both **Delete with VM** settings to be true.

VM disk encryption

Azure disk storage encryption automatically encrypts your data stored on Azure managed disks (OS and data disks) at rest by default when persisting it to the cloud.

Encryption at host ⓘ

☐

i Encryption at host is not registered for the selected subscription. [Learn more about enabling this feature](#) ↗

OS disk

OS disk type * ⓘ

Premium SSD (locally-redundant storage) ▼

Delete with VM ⓘ

☒

Key management ⓘ

Platform-managed key ▼

Enable Ultra Disk compatibility ⓘ

☐

Ultra disk is not supported for the selected VM size Standard_DS1_v2 in West US 3.

Data disks for test-example

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching	Delete with VM ⓘ
0	Pre-defined by the ...			None ▼	☒

[Create and attach a new disk](#)

[Attach an existing disk](#)

3. The **Networking** page will allow you to do things such as create a virtual network, subnets, and more.

- You can select your virtual network and configure other networking properties in the **Network interface** section. In this example, we will create a virtual network only.

NOTE

If you are using this virtual machine for demonstrative or testing purposes, we recommend enabling the Delete public IP and NIC when VM is deleted setting.

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network *	(new) testExampleVirtualNetwork Create new
Subnet *	(new) default (10.2.0.0/24)
Public IP	(new) test-example-ip Create new
NIC network security group	☐ None ☐ Basic ☒ Advanced
 This VM image has preconfigured NSG rules	
Configure network security group *	(new) test-example-nsg Create new
Delete public IP and NIC when VM is deleted	☒
Enable accelerated networking	☒

NOTE

The Azure Marketplace Image listing will preconfigure ports 80 and 443 (needed to access the Gateway via non-SSL and SSL, respectively) to already be open as inbound rules.

- ii. The **Load balancing** section will allow you to configure a load balancer to help with network traffic. In our example, we will leave this blank.

Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

Place this virtual machine behind an existing load balancing solution? ☐

4. The **Management** page will allow you to configure authentication features, auto-shutdown, and more. We do not need to modify any settings here so each setting for our example will be default.

Microsoft Defender for Cloud

Microsoft Defender for Cloud provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

✔ Your subscription is protected by Microsoft Defender for Cloud basic plan.

Identity

Enable system assigned managed identity ⓘ

☐

Azure AD

Login with Azure AD ⓘ

☐

⚠ This image does not support Login with Azure AD.

Auto-shutdown

Enable auto-shutdown ⓘ

☐

Guest OS updates

Patch orchestration options ⓘ

ⓘ Some patch orchestration options are not available for this image. [Learn more](#)

5. Next is the **Monitoring** page, in which you can set up alerts and diagnostics information. Similar to the Management page, our example will not change any of these settings.

Alerts

Enable recommended alert rules ⓘ

☐

Diagnostics

Boot diagnostics ⓘ

- ☒ Enable with managed storage account (recommended)
☐ Enable with custom storage account
☐ Disable

Enable OS guest diagnostics ⓘ

☐

6. After Monitoring, the **Advanced** page contains more specialized properties, which are explained below.

- i. **Extensions** allow you to add new features such as antivirus software, after the VM has already been deployed. See [Microsoft's documentation on extensions](#).

Extensions

Extensions provide post-deployment configuration and automation.

Extensions ⓘ

[Select an extension to install](#)

- ii. **VM applications** contain files you can download and install on your virtual machine. One benefit of using a VM application is allowing users to update programs on the VM without also needing to also update the VM itself. You can read more about VM applications on [Microsoft's official documentation](#).

VM applications

VM applications contain application files that are securely and reliably downloaded on your VM after deployment. In addition to the application files, an install and uninstall script are included in the application. You can easily add or remove applications on your VM after create. [Learn more](#) ↗

[Select a VM application to install](#)

- iii. **Custom data** gives users the ability to pass scripts or other data to the virtual machine as the VM is being provisioned. More information about custom data can be found on [Microsoft's official documentation](#).

Custom data

Pass a script, configuration file, or other data into the virtual machine **while it is being provisioned**. The data will be saved on the VM in a known location. [Learn more about custom data for VMs](#) ↗

Custom data



i Your image must have a code to support consumption of custom data. If your image supports cloud-init, custom-data will be processed by cloud-init. [Learn more about custom data for VMs](#) ↗

- iv. The **User data** field is similar to the custom data field, with the main difference being that user data can be accessed until the VM is deleted. See [Microsoft's documentation on user data](#).

User data

Pass a script, configuration file, or other data that will be accessible to your applications **throughout the lifetime of the virtual machine**. Don't use user data for storing your secrets or passwords. [Learn more about user data for VMs](#) ↗

Enable user data

☐

- v. The **Performance (NVMe)** section improves the disk performance of your VM when the **Higher remote disk storage performance** option is enabled. See [Microsoft's](#)

[documentation](#) on when this setting can be utilized.

Performance (NVMe)

Enable capabilities to enhance the performance of your resources.

Higher remote disk storage performance with NVMe 

 The selected image and size are not supported for NVMe. [See supported VM images and sizes](#) 

vi. The **Hosts**, **Capacity Reservations**, and **Proximity Placement Group** sections allow you to configure various settings to isolate and reserve resources.

Host

Azure Dedicated Hosts allow you to provision and manage a physical server within our data centers that are dedicated to your Azure subscription. A dedicated host gives you assurance that only VMs from your subscription are on the host, flexibility to choose VMs from your subscription that will be provisioned on the host, and the control of platform maintenance at the level of the host. [Learn more](#) 

Host group 

No host groups found

Capacity reservations

Capacity reservations allow you to reserve capacity for your virtual machine needs. You get the same SLA as normal virtual machines with the security of reserving the capacity ahead of time. [Learn more](#) 

Capacity reservation group 

None

Proximity placement group

Proximity placement groups allow you to group Azure resources physically closer together in the same region. [Learn more](#) 

Proximity placement group 

No proximity placement groups found

- [Click here](#) for Microsoft's documentation on Hosts.
- [Click here](#) for Microsoft's documentation on Capacity Reservation.
- [Click here](#) for Microsoft's documentation on Proximity Placement Groups.

7. Finally, the **Tags** page will help you organize and consolidate various resources. See [Microsoft's recommendations on using tags](#) for more information.

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#) 

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name 	Value 	Resource
	:	13 selected 

Below is a list of available resource tags:

- Auto-shutdown schedule
- Availability set
- Disk
- Network Interface
- Network security group
- Public IP address
- Recovery Services vault
- SQL Virtual Machine
- SSH key
- Storage account
- Virtual machine
- Virtual machine extension
- Virtual network

8. Once you have finished configuring your virtual machine, go to the **Review + Create** page. Azure will attempt to validate your settings and display a banner at the top of the page once validation is complete. Go through the summary of settings on this page. If you are satisfied with your choices, click the **Create** button.

Cloud Edition - Azure Networking and Security

This page details various networking and security settings you may need to configure for your Cloud Edition virtual machine.

Basic Networking and Security Requirements

The following is a list of configurable items you need when connecting to a Cloud Edition virtual machine. Note that this is not a comprehensive list; it is meant to show the fundamental features that you need to set up for your virtual machine. See the official [Azure documentation](#) for a list of networking features you can utilize in your architecture.

- Virtual network
- Subnet
- Network Security Group (NSG)
- Public IP

NOTE

The virtual network and available subnets are configured during the same process on Azure.

Additionally, you will need to allow traffic through your firewall to the `*.microsoft.com` and `*.digicert.com` domains if you are using port 80 or 443. Without this, your Gateway will go into trial mode.

Examples

The following examples show how to configure the bulleted items in the Basic Networking and Security Requirements section above. Each example demonstrates how to create their respective resources through both the virtual machine creation wizard and Azure services. These examples are demonstrative, and may not reflect how you want to configure your own network and security.

Creating a Virtual Network

You can create a virtual network during the virtual machine creation process or through Azure services.

Virtual Network - Virtual Machine Creation Process

1. Begin by accessing the **Create a virtual machine** wizard. You can find instructions on creating your virtual machine on the [Image Access Instructions - Azure](#) page.
2. Complete the wizard steps until you reach the **Networking** page. Note that the virtual network field is already filled out, using your virtual machine name as part of the name of the virtual network.

NOTE

If you selected a Resource Group on the **Basics** page, Azure will attempt to use a pre-existing virtual network originating from the chosen Resource Group.

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network * 

(new) testExampleVM-vnet 
[Create new](#)

3. From here, you could also choose another virtual network to use or configure the new virtual network. If you want to configure the new virtual network, click **Create new**. This will allow you to specify a different address range and subnet(s). In this example, we will use the default address range and subnet.

Name *

Address space

The virtual network's address space, specified as one or more address prefixes in CIDR notation (e.g. 192.168.1.0/24).

☐	Address range	Addresses	Overlap	
☐	10.3.0.0/16	10.3.0.0 - 10.3.255.255 (6...	None	...
		(0 Addresses)	None	

Subnets

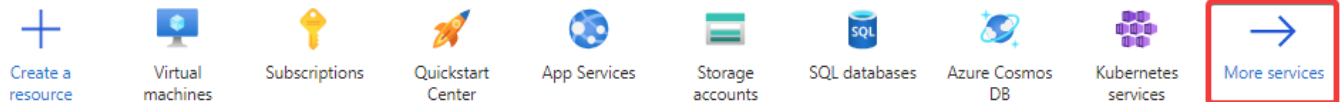
The subnet's address range in CIDR notation. It must be contained by the address space of the virtual network.

☐	Subnet name	Address range	Addresses	
☐	default	10.3.0.0/24	10.3.0.0 - 10.3.0.255 (256 ad...	...
			(0 Addresses)	

Virtual Network - Azure Services

1. Go to your **Azure services** on the Azure console's home page.
2. Click on **More services**.

Azure services



3. Click on **Networking** in the Categories sidebar.

Categories

AI + machine learning

Analytics

Compute

Containers

Databases

Integration

Mixed reality

Monitor

Networking

Security

Storage

Web & Mobile

4. Click on **Virtual networks** in the Networking foundation section.

Network foundation

 Bastions

 DNS private resolvers

 NAT gateways

 Private DNS zones

 Public IP addresses

 Virtual networks

 Custom IP Prefixes

 DNS zones

 Network managers

 Private Link

 Public IP Prefixes

5. Click on **Create** in the upper left corner.

Virtual networks

Inductive Automation

 Create

 Manage view

 Refresh

 Export to CSV

 Open query

 Assign tags

6. A virtual network creation wizard will appear and start on the **Basics** page. Begin by selecting the **subscription**, **resource group**, and **region** your new virtual network will reside in, and give your virtual network a **name**.

Azure Virtual Network (VNet) is the fundamental building block for your private network in Azure. VNet enables many types of Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation. [Learn more about virtual network](#)

Project details

Subscription * ⓘ Training Division

Resource group * ⓘ ignitioncloud-build-training-rg

[Create new](#)

Instance details

Name * testVirtualNetwork ✓

Region * West US 3

7. Click **Next: IP Addresses** on the bottom.

8. The **IP Addresses** page contains settings to configure address spaces and subnets. We will use the default address space and subnet here.

The virtual network's address space, specified as one or more address prefixes in CIDR notation (e.g. 192.168.1.0/24).

IPv4 address space

10.3.0.0/16 10.3.0.0 - 10.3.255.255 (65536 addresses) 

☐ Add IPv6 address space ⓘ

The subnet's address range in CIDR notation (e.g. 192.168.1.0/24). It must be contained by the address space of the virtual network.

[+](#) Add subnet  Remove subnet

☐ Subnet name	Subnet address range	NAT gateway
☐ default	10.3.0.0/24	-

 A NAT gateway is recommended for outbound internet access from subnets. Edit the subnet to add a NAT gateway. [Learn more](#) 

9. Click **Next: Security**.

10. The **Security** page allows you to enable or disable various security settings.

 **NOTE**

Since this example is demonstrative, we are using the default Disabled settings. For security purposes however, we recommend enabling security features for your virtual network.

BastionHost ⓘ	☒ Disable
	☐ Enable
DDoS Network Protection ⓘ	☒ Disable
	☐ Enable
Firewall ⓘ	☒ Disable
	☐ Enable

11. Click **Next: Tags** once you finish configuring security.

12. The **Tags** page allows you to group and consolidate various resources by applying the same tag. We will not set up any tags for our example.

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#) ↗

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name ⓘ	Value ⓘ
	:

13. Click **Next: Review + create**.

14. Azure will now attempt to validate your settings, and will show a banner at the top of the page once validation is complete. Review the summary of your chosen settings. If you are satisfied with your choices, click **Create**.

Create a Network Security Group

Azure's Cloud Edition Image will come with preconfigured network security group rules with ports 80, 443, and 22 open. You can still create your own during the virtual machine creation process or through Azure services.

When creating a new network security group **from the wizard**, ports 80, 443, and 22 will be open by default. Creating a network security group through **Azure services** will require you to manually open the specified ports.



Port 22 is typically used to get admin access and shell into the virtual machine. Since port 22 is open by default, it may be prudent to remove this rule depending on your network architecture. Port 80 is required to access the Gateway in a non-SSL environment, while port 443 is required to access the Gateway using SSL. Keep in mind that you will still need to [enable SSL/TLS](#) on the Gateway before using port 443.

Regardless of how you utilize your network security group, we recommend limiting access to required IP addresses only for security purposes.

Network Security Group - Virtual Machine Creation Process

1. Begin by going to the **Create a virtual machine wizard**. You can find instructions on creating your virtual machine on the [Image Access Instructions - Azure](#) page.
2. Complete the steps until you reach the **Networking** page.
3. Azure will create a new network security group based off the name of your virtual machine. To edit it, click **Create new**.

Configure network security group *

(new) testVirtualMachine-nsg

Create new

i NOTE

When creating a network security group through the virtual machine creation wizard, the new network security group will be configured with the image's network security group rules. Ports 80, 443, and 22 will already be open and allow incoming traffic to hit those ports.

4. You will be taken to a list of **inbound** and **outbound** rules. From here, you can add more rules by clicking **Add an inbound/outbound rule** at the end of each list.

Inbound rules ⓘ

1010: HTTP Any HTTP (TCP/80)	✓	...
1020: HTTPS Any HTTPS (TCP/443)	✓	...
1030: default-allow-ssh Any SSH (TCP/22)	✓	...

[+ Add an inbound rule](#)

Outbound rules ⓘ

No results

[+ Add an outbound rule](#)

ⓘ NOTE

If you want to add or modify your rules later, you can edit your network security group in Azure Services.

5. After you finish configuring your network security group, click **OK** at the bottom.

Network Security Group - Azure Services

1. Go to your **Azure services** on the Azure console's home page.
2. Click on **More services**.

Azure services



Create a
resource



Virtual
machines



Subscriptions



Quickstart
Center



App Services



Storage
accounts



SQL databases



Azure Cosmos
DB



Kubernetes
services



[More services](#)

3. Click on **Networking** in the Categories sidebar.

Categories

AI + machine learning

Analytics

Compute

Containers

Databases

Integration

Mixed reality

Monitor

Networking

Security

Storage

Web & Mobile

- Click on **Network security groups** in the Network security section.

Network security

 DDoS protection plans

 Firewalls

 Network Security Perimeters

 Firewall Manager

 Network security groups

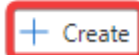
 Web Application Firewall policies (WAF)

PREVIEW

- Click on **Create** in the upper left corner.

Network security groups

Inductive Automation (inductiveautomation1.onmicrosoft.com)

  Manage view  Refresh  Export to CSV  Open query |  Assign tags

- A network security group creation wizard will appear and start on the **Basics** page. Begin by selecting the **subscription**, **resource group**, and **region** your new network security group will reside in, and give your network security group a **name**.

Project details

Subscription *

Training Division

Resource group *

ignitioncloud-build-training-rg

[Create new](#)

Instance details

Name *

testNetworkSecurityGroup

Region *

West US 3

7. Click **Next: Tags** on the bottom.

8. The **Tags** page will allow you to group and consolidate various resources by applying the same tag. We will not set up any tags for our example.

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name ⓘ

Value ⓘ

:

9. Click **Next: Review + create**.

10. Azure will now attempt to validate your settings, and will show a banner at the top of the page once validation is complete. Review the summary of your chosen settings. If you are satisfied with your choices, click **Create**.

11. After Azure has finished deploying your network security group, click on **Go to resource**.

✓ Your deployment is complete



Deployment name : Microsoft.NetworkSecurityGroup-20230629120945

Subscription : Training Division

Resource group : ignitioncloud-build-training-rg

Start time : 6/29/2023, 12:39:23 PM

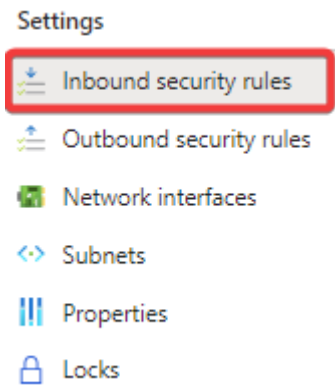
Correlation ID : a642324f-f321-40ed-9da2-f6f6cc4702b9

> Deployment details

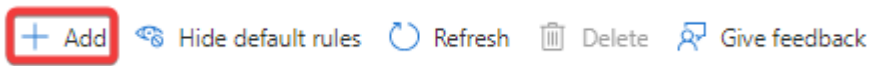
✓ Next steps

[Go to resource](#)

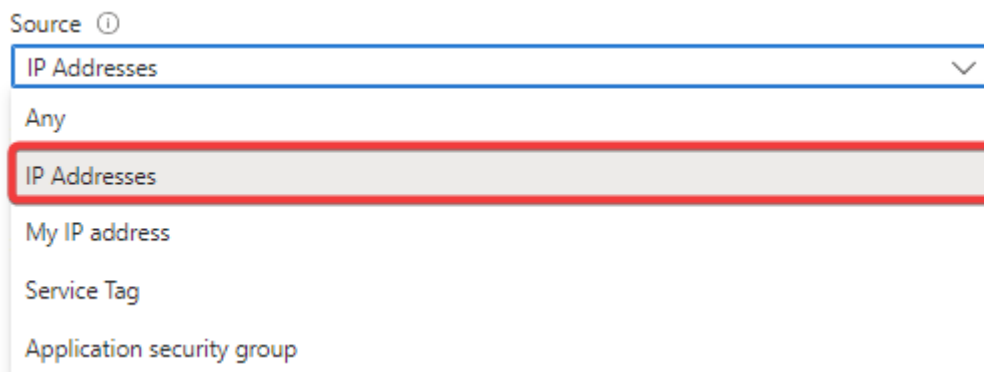
12. Once you reach your resource, you can begin specifying which ports you want to open and limiting access to your Gateway by specifying IP addresses in your inbound security rules. To do these actions, begin by clicking **Inbound security rules** in the sidebar under Settings.



13. Click on **Add** in the upper left corner.



14. Change the **Source** field's value to **IP Addresses**.



15. Two new fields will now appear. Put the IP addresses you want to allow access from in the **Source IP addresses/CIDR ranges**. If you would like to also define a port to allow traffic from, you can use the **Source port ranges** field.

A screenshot of the AWS IAM console form. It shows three fields: 'Source' (a dropdown menu with 'IP Addresses' selected), 'Source IP addresses/CIDR ranges' (a text input field with '10.0.0.0/24' entered and a green checkmark on the right), and 'Source port ranges' (a text input field with '*' entered). The 'Source' field is highlighted with a purple border, and the 'Source IP addresses/CIDR ranges' field is also highlighted with a purple border.

NOTE

Alternatively, you can also put IP addresses you want to deny access from by setting the **Action** property to "Deny".

16. Add the ports you want to be open and accessible in the **Destination port ranges** field.

Destination ⓘ
Any

Service ⓘ
Custom

Destination port ranges * ⓘ
8080

NOTE

If you have not done so already, you will need to open ports 80 and 443 in order to access the Gateway webpage via non-SSL and SSL, respectively.

17. Choose the **protocol** you want, as well as whether you want to **allow** or **deny** access from the specified IP.

Protocol

☒ Any

☐ TCP

☐ UDP

☐ ICMP

Action

☒ Allow

☐ Deny

NOTE

Use the TCP protocol when setting an inbound rule to open ports 80 and 443.

18. Set the **name** and **priority** of the inbound rule.

19. Click **Add**. Your inbound security rule will become active and added to your network security group.

Creating a Public IP

You can create a Public IP in the virtual machine creation wizard or through Azure services. However, creating a public IP through Azure services will give you a few more options to configure, including:

- IP Version
- Availability Zone
- Tier
- Idle Timeout (minutes)
- DNS Name Label

NOTE

Be careful when creating your public IP, as you will not be able to change many of its settings after creating it.

Public IP - Virtual Machine Creation Process

1. Begin by going to the **Create a virtual machine** wizard. You can find instructions on creating your virtual machine on the [Image Access Instructions - Azure](#) page.
2. Complete the steps until you reach the **Networking** page.
3. Azure will create a new public IP based off the name of your virtual machine. To edit it, click **Create new**.

Configure network security group *

(new) testVirtualMachine-nsg

▼

Create new

4. From here, you can set the **name**, **SKU**, and **routing preference**.

Name *

testVirtualMachine-ip

✓

SKU * ⓘ

☐ Basic ☒ Standard

Assignment ⓘ

☒ Static

Routing preference ⓘ

☒ Microsoft network ☐ Internet

Availability zone

Zone-redundant

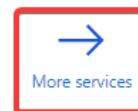
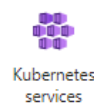
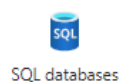
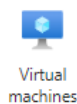
5. Make your selections, and then press **OK** at the bottom.

Public IP - Azure Services

1. Go to your **Azure services** on the Azure console's home page.

2. Click on **More services**.

Azure services



3. Click on **Networking** in the Categories sidebar.

Categories

AI + machine learning

Analytics

Compute

Containers

Databases

Integration

Mixed reality

Monitor

Networking

Security

Storage

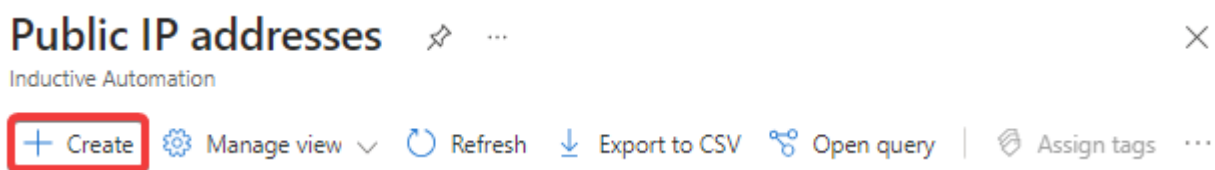
Web & Mobile

4. Click on **Public IP addresses** in the Network foundation section.

Network foundation



5. Click **Create** in the upper left corner.



6. You will be taken to a public IP creation wizard. Begin at the **Project details** section and select the **subscription** and **resource group** you'd like to deploy your public IP in.

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription ⓘ *

Resource group ⓘ *

[Create new](#)

7. Under **Instance details**, select the **region** you want to deploy this resource in.

Instance details

Region ⓘ *

[Deploy to an edge zone](#)

8. The **Configuration details** section contains all the properties that are specifically related to public IP addresses. In this example, we will leave everything as the default setting.

Configuration details

Name *	testPublicIP
IP Version * ⓘ	☒ IPv4 ☐ IPv6
SKU * ⓘ	☒ Standard ☐ Basic
Availability zone * ⓘ	Zone-redundant
Tier * ⓘ	☒ Regional ☐ Global
IP address assignment * ⓘ	☐ Dynamic ☒ Static
Routing preference * ⓘ	☒ Microsoft network ☐ Internet
Idle timeout (minutes) * ⓘ	4
DNS name label ⓘ	

9. Click **Next:Tags** at the bottom.

10. The **Tags** page will allow you to group and consolidate various resources by applying the same tag. We will not set up any tags for our example.

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
	:	Public IP address

Once you are done with your tags, click **Next: Summary**.

11. Azure will now attempt to validate your settings, and will show a banner at the top of the page once validation is complete. Review the summary of your chosen settings. If you are satisfied with your choices, click **Create**.

Cloud Edition Gateway

The Cloud Edition Gateway is very similar to a standard Ignition Gateway. Many of the features that exist on the standard Ignition platform also exist in Cloud Edition, though there are some aspects that differ. There are three tabs on the left: Home, Status, and Config.

Home

The **Home** tab allows you to download the Designer Launcher, Vision Client Launcher, Perspective Workstation, or view a Perspective project. Additionally, there are resource links near the bottom of the Home page to help you get started with Ignition quickly:

- Inductive University
- Ignition Exchange
- Inductive Automation forums
- Product Documentation
- Appendix
 - Contains a complete reference for components, expressions, and scripting functions.

When you open your Cloud Edition Gateway, the Home page will usually be the landing page. It's where you'll find the Designer Launcher, Perspective Workstation, and Perspective Sessions.

- The **Designer Launcher** locates all Gateways that are available on your local network. Once you open the Designer Launcher, you can access the projects on the selected Gateway.
- The **Perspective Workstation** allows users to open Perspective Sessions on the machine Workstation is installed on.
- The **Perspective Sessions** opens Perspectives Sessions from this Gateway.

When running Perspective as the visualization method for your project, you can launch a Perspective Session from the Designer, from the Gateway, or by entering the web address of the project in your web browser.

admin | Log Out →

Ignition! Cloud Edition

Help ?

Get Designer

Home

Home > Get Started

WELCOME

Meet Ignition



Build It

Get the Designer

The Designer brings all your data, systems, and developers together into one beautifully simple, integrated development environment specifically designed to help you build industrial applications more quickly.



Download Designer Launcher

Run It

Perspective Workstation

Download Perspective Workstation to open sessions from any Ignition Gateway.



Download Perspective Workstation

Status

The **Status** tab provides an overview of all the systems in your Gateway while also enabling you to drill down into specific systems and get an in-depth view of what is currently happening. For complete information, see Ignition Gateway **Status**.

The **Config** tab provides access to configuration options for Gateway settings. This is where most of the settings that affect the whole Gateway are set up. Note that some settings, such as device connectivity drivers, are not available for Cloud Edition. For complete information, see Ignition Gateway [Config](#).

SYSTEM

- Overview
- Backup/Restore
- Ignition Exchange
- Licensing
- Modules
- Projects
- Redundancy
- Gateway Settings

NETWORKING

- Web Server
- Email Settings
- Gateway Network

SECURITY

- General
- Auditing
- Users, Roles
- Service Security
- Identity Providers
- OAuth2 Clients
- Security Levels
- Security Zones

DATABASES

- Connections
- Drivers
- Store and Forward

ALARMING

Search...

Configuration

From the Configure section you can set up all connections, projects, and settings
Here are some common actions to get you started.

PLATFORM

- Update System Name
- Configure Redundancy
- Install or Upgrade a Module
- Create New Project
- Activate a License
- Download Gateway Backup

NETWORKING

- Change Web Server Settings
- Enable SSL for the Gateway Network
- Create an Email Profile
- Manage incoming/outgoing Gateway Network connections

SECURITY

- Change General Gateway Security Settings
- Create a new user
- Assign a user a new role
- View the logs of an audit profile
- Define a Security Zone
- Set access levels on a Security Policy

CONNECTIONS

- Create a new database connection
- Connect to a 3rd party OPC server
- Create a new device

SYSTEMS

- Create an alarm journal profile
- Manage schedules and holidays
- Create a new alarm

DATA ACQUISITION

- Define a new realtime tag provider
- Manage tag historians
- Quickly read or write tags in a device

Upgrading Ignition within Cloud Services

Accessing the Ubuntu OS through SSH

The official Ignition CE platform is installed on a headless Ubuntu OS for either an AWS EC2 or Microsoft Azure Virtual Machine (VM). To perform an Ignition CE upgrade on your existing cloud environment, you will first need to SSH into the Ubuntu OS in order to perform a series of commands through its Command Line Interface (CLI). Each cloud service has their own method of directly accessing the Ubuntu OS.

AWS EC2

The upgrade process for the official Ignition AMI being hosted on an AWS EC2 instance assumes you are running Cloud Edition (CE) on an existing AWS EC2 instance. To create a new EC2 instance with CE, launch an instance using the official CE Ignition AMI publicly available at the [AWS Marketplace](#). Once your instance is successfully running with CE, navigate to the [EC2 Management Console](#) of your AWS Account and refer to the following steps:

1. On your EC2 Management Console, navigate to the Instances page located on the left-hand side navigation panel.
2. Under the Instances page, locate the specific instance containing Ignition CE from the instances table and select its checkbox. Ensure that your instance is running properly before continuing.
3. Once selected, click on the Connect button located above the instances table to navigate to the Connect to instance page.

Connect to instance [Info](#)

Connect to your instance [redacted] (Ignition-Test) using any of these options

EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

Instance ID

 [redacted] (Ignition-Test)

Public IP address

 [redacted]

User name

Enter the user name defined in the AMI used to launch the instance. If you didn't define a custom user name, use the default user name, ubuntu.

ubuntu

Note: In most cases, the default user name, ubuntu, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.

Cancel

Connect

4. Select the default option EC2 Instance Connect. The User name section by default will be "ubuntu", which is also the default user name specified for the AMI. Click Connect at the bottom right-hand corner to connect to the CLI of the running Ubuntu OS for your EC2 instance through your web browser.


```
aws Services Q Search [Alt+S]
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-1022-aws x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:       https://ubuntu.com/advantage

System information as of Wed Apr 19 15:20:40 UTC 2023

System load:  0.0244140625      Processes:           120
Usage of /:   60.6% of 7.57GB   Users logged in:    0
Memory usage: 90%              IPv4 address for eth0: 10.0.11.121
Swap usage:   0%

* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.

  https://ubuntu.com/aws/pro

* Introducing Expanded Security Maintenance for Applications.
  Receive updates to over 25,000 software packages with your
  Ubuntu Pro subscription. Free for personal use.

  https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

18 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

*** System restart required ***
Last login: Thu Apr  6 22:12:14 2023 from 13.52.6.115
ubuntu@ip-10-0-11-121:~$
```

Microsoft Azure VM

The upgrade process for the official Ignition image hosted on Microsoft Azure assumes you are running Cloud Edition (CE) on an existing Azure VM. To create a new VM with CE, launch an instance using the official CE Ignition AMI publicly available at the [Azure Marketplace](#). Once your VM is successfully running with CE, navigate to your [Azure Portal](#) and complete the following steps:

1. On your Azure Portal homepage, navigate to the Virtual Machines page listed under Azure Services.
2. Under the Virtual Machines page, locate and select the specific VM record containing Ignition CE from the list. Ensure that your VM is running properly under the status column before continuing.

3. Inside the specific VM configuration menu, click on the Connect button located above the Essentials section to review details for establishing SSH Clients with your existing Azure VM.

The screenshot shows the Azure portal interface for a virtual machine named "IgnitionCloud-Aaron". The left sidebar contains a navigation menu with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings, Networking, Connect (highlighted), Disks, Size, Microsoft Defender for Cloud, Advisor recommendations, Extensions + applications, Availability + scaling, Configuration, Identity, Properties, and Locks. The main content area is titled "Connect" and includes a warning banner about just-in-time access. Below this, there are tabs for RDP, SSH (selected), and Bastion. The "Connect via SSH with client" section shows a "Suggested method for connecting" with a list of prerequisites: an inbound network security group rule, a public IP address, and the VM being running. It also provides step-by-step instructions for connecting via SSH, including setting permissions for the private key and running the ssh command.

IgnitionCloud-Aaron | Connect ☆ ...
Virtual machine

Search

Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Networking
Connect
Disks
Size
Microsoft Defender for Cloud
Advisor recommendations
Extensions + applications
Availability + scaling
Configuration
Identity
Properties
Locks

To improve security, enable just-in-time access on this VM. →

RDP **SSH** Bastion

Connect via SSH with client

^ ✓ Suggested method for connecting

Azure has checked the status for the most common prerequisites when connecting using this method.

- ✓ An inbound network security group rule has been created and your client IP address can access port 22. [Learn more](#)
- ✓ The VM's network interface has a Public IP address. [Learn more](#)
- ✓ The VM is running.

1. Open the client of your choice, for example [WSL on Windows](#), [Terminal on Mac](#) or [Shell on Linux](#).
2. Ensure you have read-only access to the private key. Chmod is only supported on Linux subsystems (e.g. WSL on Windows or Terminal on Mac).

```
chmod 400 <keyname>.pem
```
3. Provide a path to your SSH private key file. [Replace/reset your SSH private key](#). ⓘ
Private key path
4. Run the example command below to connect to your VM.

```
ssh -i <private key path> azureuser@<public ip>
```

4. A third party SSH client of your choice will be required for completing step 3. For this example, PuTTY was used. Initial login of the SSH client will require the username specified during Azure VM creation. The default username is "azureuser".

```
azureuser@IgnitionCloud-Aaron: ~  
login as: azureuser  
Authenticating with public key "imported-openssh-key"  
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.15.0-1038-azure x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/advantage  
  
System information as of Tue Jun 27 19:36:11 UTC 2023  
  
System load:  0.0               Processes:            111  
Usage of /:   27.1% of 28.89GB   Users logged in:     0  
Memory usage: 41%              IPv4 address for eth0: 10.0.0.4  
Swap usage:   0%  
  
* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s  
  just raised the bar for easy, resilient and secure K8s cluster deployment.  
  
  https://ubuntu.com/engage/secure-kubernetes-at-the-edge  
  
Expanded Security Maintenance for Applications is not enabled.  
  
22 updates can be applied immediately.  
To see these additional updates run: apt list --upgradable  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
*** System restart required ***  
Last login: Mon Jun 26 20:23:48 2023 from [REDACTED]  
azureuser@IgnitionCloud-Aaron:~$
```

Upgrading Ignition Cloud Edition

Once you are successfully connected to the CLI of the Ubuntu OS, you will now be able to fetch the latest version of the Ignition CE installer from the Inductive Automation's [downloads page](#).

1. Navigate to the section of Linux system installers and right-click > Copy Link Address against the link labeled: **Ignition Cloud - Linux Installer 64-bit**.
2. Enter the following command on the CLI using the link copied from the previous step.

NOTE

The following URL <https://releases.inductiveautomation.com/nightly/8.1.29-SNAPSHOT/20230523-1027/ignition-cloud-8.1.29-SNAPSHOT-linux-64-installer.run> is a placeholder and will vary depending on address link copied from the Inductive Automation downloads page

```
wget --referer https://inductiveautomation.com/*  
https://releases.inductiveautomation.com/nightly/8.1.29-SNAPSHOT/20230523-  
1027/ignition-cloud-8.1.29-SNAPSHOT-linux-64-installer.run
```

3. Once the download is complete, you will need to update the installer file's permissions before it can be executed. Enter the following command on the CLI:

```
chmod 700 ignition-cloud-8.1.29-SNAPSHOT-linux-64-installer.run
```

4. Confirm that the file's permissions were changed to allow executions using **ls -l**.

```
ubuntu@ip-10-0-7-165:~$ ls
ignition-cloud-8.1.29-SNAPSHOT-linux-64-installer.run
ubuntu@ip-10-0-7-165:~$ chmod 700 ignition-cloud-8.1.29-SNAPSHOT-linux-64-installer.run
ubuntu@ip-10-0-7-165:~$ ls
ignition-cloud-8.1.29-SNAPSHOT-linux-64-installer.run
ubuntu@ip-10-0-7-165:~$ ls -l
total 1703404
-rwx----- 1 ubuntu ubuntu 1744278728 May 23 06:41 ignition-cloud-8.1.29-SNAPSHOT-linux-64-installer.run
ubuntu@ip-10-0-7-165:~$
```

5. Once the file is set as an executable, run the installer on the CLI by entering the following:

```
./ignition-cloud-8.1.29-SNAPSHOT-linux-64-installer.run
```

6. Once entered, the file will run and will first prompt you to specify where the existing Ignition install directory resides. The Cloud Edition AMI by default uses the directory **/usr/local/bin/ignition** during installation and is already specified for you on the prompt to accept by default as well. Simply hit enter to continue if all default settings were specified or specify the custom directory of your Ignition install if needed. If an existing directory is detected, you will be prompted to confirm the upgrade process.

```
INFO [IgnitionInstaller] [2023/05/23 16:58:41]: log location set to /home/ubuntu/.ignition/install/install.log
INFO [IgnitionInstaller] [2023/05/23 16:58:41]: log level set to 'INFO'

-----
Welcome to the Ignition Cloud Installer!

This wizard will help install Ignition and its core components.

Installer Help
The following slash commands can be invoked from anywhere
'//Help' to print this help message
'//Quit' to Quit to the installer
'//About' to print the current interactive
'//Back' to return to the previous step
'//Restart' to return the first step in the installer.

-----
Installation Location

Please specify the directory where Ignition will be installed. If you are
upgrading Ignition, then select the directory where Ignition is currently
installed.

[/usr/local/bin/ignition]:
Setup has located Ignition by Inductive Automation installed in:
/usr/local/bin/ignition Continuing will stop the Ignition Server and replace
this installation with the version in this installer. It is highly recommended
that you back up your gateway before proceeding with the upgrade.
Continue with upgrade? [Y/n]:
```

7. Once the upgrade process is accepted, you will also be given a few more prompts to confirm any individual module upgrades and additional module inclusions. Details of all currently installed modules will be provided. Confirm these prompts to receive the final confirmation for running the upgrade process.

```
[N] MongoDB Connector      not installed      won't install
[Y] MQTT Distributor      4.0.15.2023020918  4.0.16.2023041422
[Y] MQTT Engine           4.0.15.2023020918  4.0.16.2023041422
[Y] MQTT Transmission     4.0.15.2023020918  4.0.16.2023041422
[Y] OPC-UA                9.1.27.2023031616- 9.1.29.2023052208-
[Y] Perspective           2.1.27.2023031616- 2.1.29.2023052208-
[Y] Reporting             6.1.27.2023031616- 6.1.29.2023052208-
[Y] SFC                   5.1.27.2023031616- 5.1.29.2023052208-
[Y] SQL Bridge            10.1.27.2023031616 10.1.29.2023052208
[Y] Symbol Factory        7.1.27.2023031616- 7.1.29.2023052208-
[Y] Tag Historian         4.1.27.2023031616- 4.1.29.2023052208-
[Y] Twilio Integration and Alarm Notif 3.1.27.2023031616- 3.1.29.2023052208-
[Y] Voice Notification    6.1.27.2023031616- 6.1.29.2023052208-
[Y] WebDev                5.1.27.2023031616- 5.1.29.2023052208-
Moving on to any additional modules
Would you like to modify any additional modules? [y/N]: n

-----
Ready to Upgrade

Setup is now ready to begin upgrading Ignition on your computer.

Do you want to continue? [Y/n]: y
[#]      ] 0%: Checking existing gateway's state
[#]      ] 0%: Configuring Install Actions
[#]      ] 0%: Executing Install Actions
[#]      ] 0%: Creating a gateway backup. This may take some time...
[#]      ] 0%: Gateway backup 'backup_2023523171.gwbk' creation complete
[#]      ] 0%: Stopping Gateway. This may take some time..
```

8. The CLI will notify you when the upgrade process is complete and will also state error logs in the event of an issue. Once the upgrade process is complete, you will be prompted to both start the Ignition server and install a service for doing so. Starting the service will provide log details on what is running successfully.

```

[#####] 97%: webserver/webapps/main/favicon.ico
[#####] 97%: webserver/webdefault.xml
[#####] 97%: wrapper-license.conf
[#####] 97%: Extraction of Install artifacts complete
[#####] 97%: Starting Module customization
[#####] 97%: Module customization complete
[#####] 97%: Creating un-installer
[#####] 99%: Uninstaller Created
[#####] 99%: Starting post-install modifications
[#####] 99%: Exporting PATH and executable alias
[#####] 99%: Adjusting the install's ownership
[#####] 99%: symlink 'webserver/csr.pfx' target is missing. skipping..
[#####] 99%: symlink 'webserver/ssl.pfx' target is missing. skipping..
[#####] 99%: Running the Upgrader tool
[#####] 99%: Upgrader tool completed successfully
[#####] 99%: Installer actions complete. Performing cleanup
[#####] 99%: Install complete

-----
Ignition Successfully Upgraded

The wizard has finished upgrading Ignition on your computer.

Start Ignition Now [Y/n]: y
Install Service [Y/n]: y
INFO [IgnitionInstaller] ] [2023/05/23 17:02:57]: Starting Gateway. This should only take a moment..
INFO [IgnitionInstaller] ] [2023/05/23 17:03:02]: Gateway started
INFO [IgnitionInstaller] ] [2023/05/23 17:03:02]: http://localhost:80
INFO [IgnitionInstaller] ] [2023/05/23 17:03:02]: http://localhost:80
ubuntu@ip-10-0-7-165:~$

```

9. Once the Ignition service has started, you can exit the CLI and return to your instances page or navigate to your Ignition Gateway webpage.

Launchers and Workstation

Ignition features several launchable runtimes: Vision Clients, the Designer, and Perspective Sessions. To help with managing these separate systems, Ignition Gateways provide several **launcher** programs for each runtime. These launchers are the main means of launching an Ignition runtime application. For the purposes of clarity, the following are considered launchers:

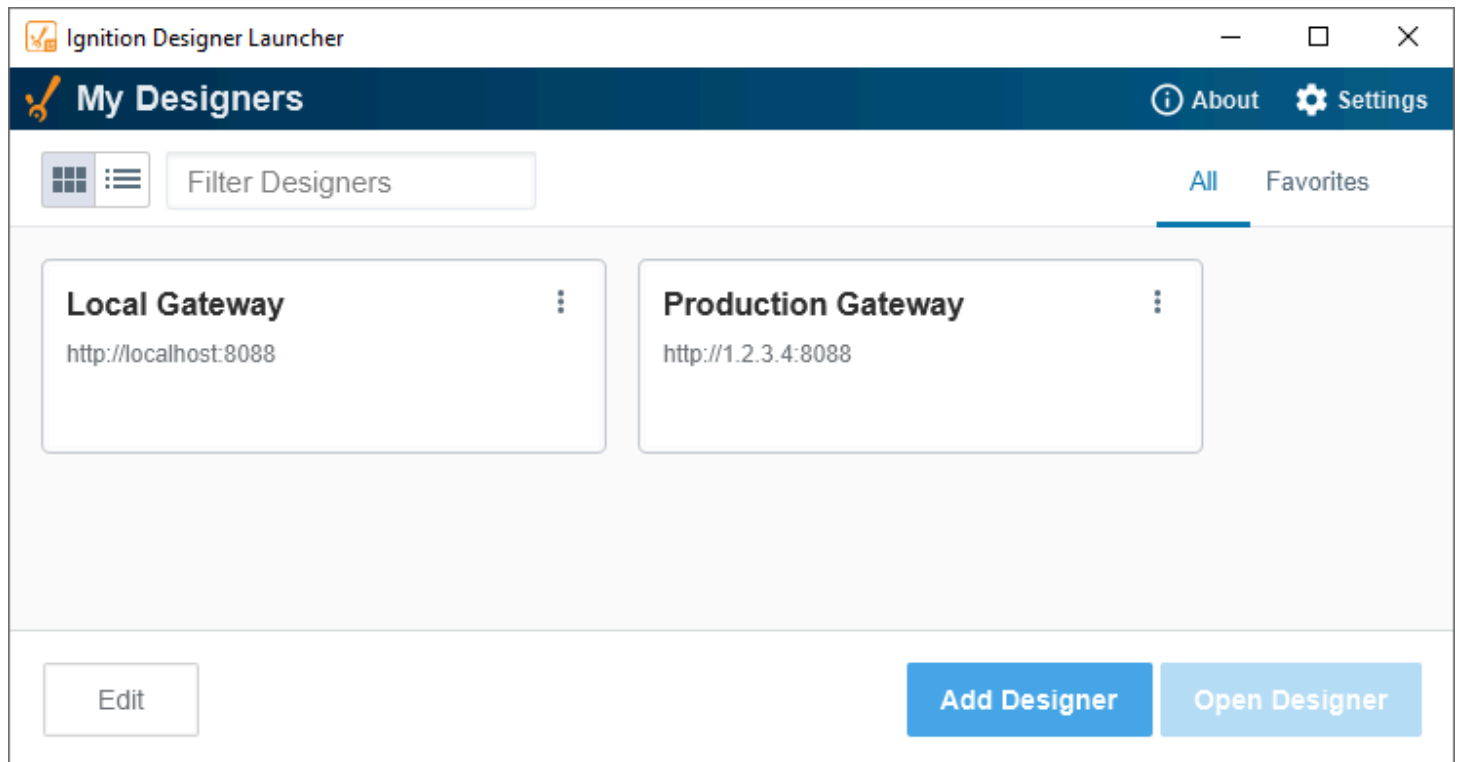
- **Designer Launcher:** launches the **Designer** against the configured Gateway.
- **Vision Client Launcher:** opens Vision Clients from an Ignition Gateway.
- **Perspective Workstation:** opens Perspective sessions from an Ignition Gateway, in a standalone desktop program.

This page describes the download and installation process shared by the application launchers mentioned above, as well as the common property settings. Some property settings are unique to a specific launcher application and will be detailed on that specific launcher application's page.

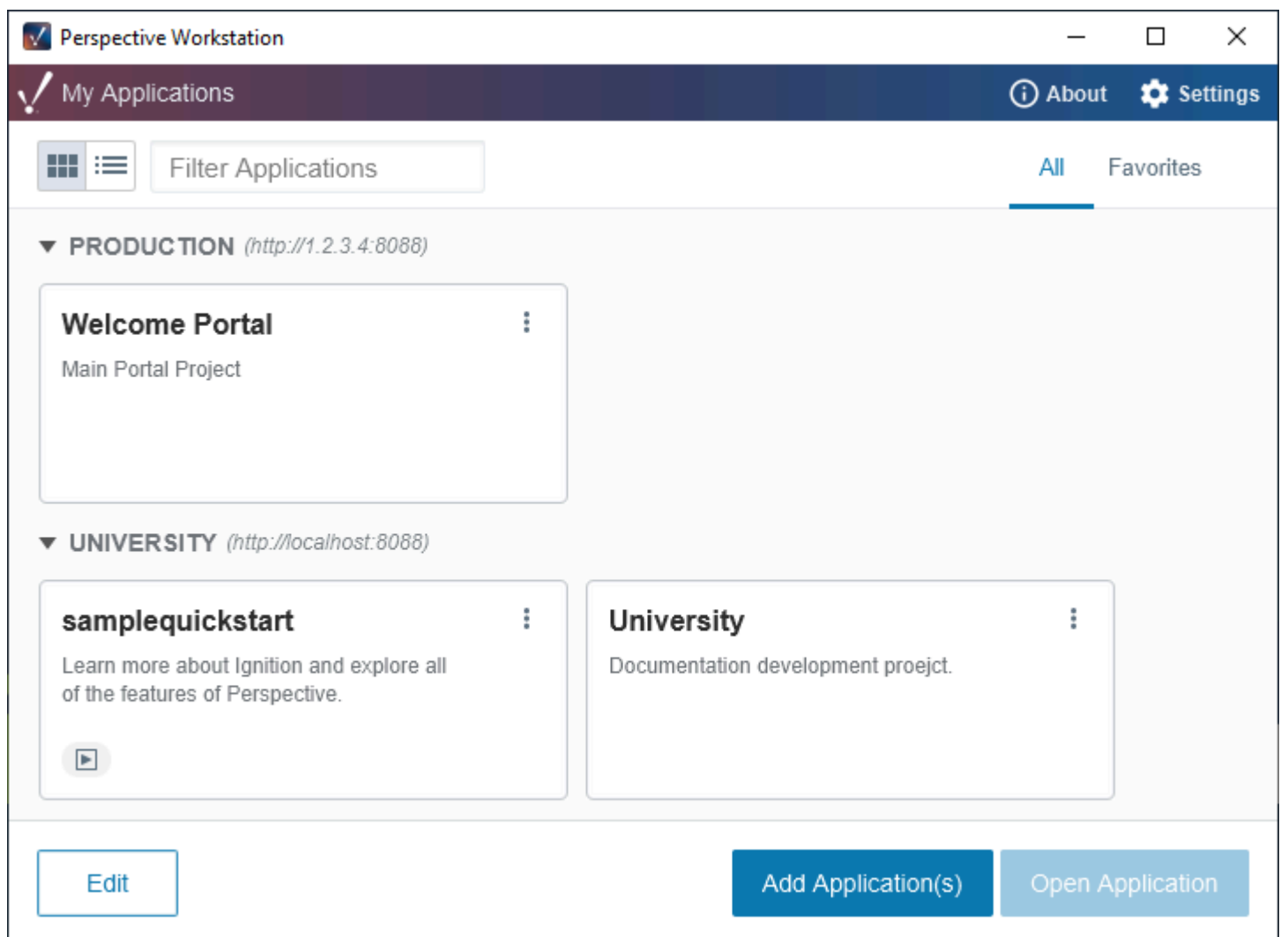
What Is an Application?

To understand the purpose of a launcher, we need to understand what an application is. An application is a configuration in a launcher that is associated with a project.

The Ignition Designer Launcher is the launcher for the Designer. This launcher has two Applications configured, the **Local Gateway** and the **Production Gateway**. Selecting either application and clicking **Open Designer** will launch the Designer for the selected Gateway.



The Vision Client Launcher and Perspective Workstation work under a similar pattern, except each application represents a project in a Gateway. Multiple projects from a single Gateway can be represented in a launcher. There is a **Welcome Portal** application under the **Production** Gateway, while the **University** Gateway features two applications that each lead to a different project.



Launcher Download and Installation

This section demonstrates the common download and installation steps for all the launcher applications. Each launcher application has an install wizard that will guide you through the installation process. The installation steps are common for all the launchers with a few exceptions depending on the operating system you're using.

NOTE

Although you can run the Ignition Gateway and Perspective Sessions on ARM-based Desktops (such as a Raspberry Pi), the Designer, Vision Client, and Perspective Workstation cannot be run on ARM-based Linux machines. Instead, the Designer, Vision Client, or Perspective Workstation will need to be installed and run from an Intel-based machine.

For the sake of brevity, this section will focus on installing the Designer Launcher, but the steps for installing the Vision Client Launcher and Perspective Workstation are all very similar.

1. Go to the **Home** tab of the Gateway webpage. You will see buttons that lead to separate download pages for each of the launchers. Click the desired button and you'll be redirected. We'll click on **Download Designer Launcher**.

The screenshot shows a web browser window with the address bar displaying 'localhost:8088/web/home?7'. The browser tab is titled 'Controller - Ignition Gateway'. The page header includes the Ignition logo, a 'Help' link, and a 'Get Designer' button. A navigation sidebar on the left contains 'Home', 'Status', and 'Config' links. A green banner at the top of the page indicates 'Trial Mode 1:55:17' and includes an 'Activate Ignition' button. The main content area features a 'WELCOME' message, the text 'Meet Ignition' with the Ignition logo, and a 'Build It' section. This section contains a card for 'Get the Designer' with a description and a 'Download Designer Launcher' button. Below this is a 'Run It' section with two cards: 'Vision Client Launcher' and 'Perspective Workstation', each with a corresponding 'Download' button. The 'Home' link in the sidebar is highlighted with a red box.

2. Your web browser will detect the operating system, and suggest the appropriate download for the Download button. Press the button to download the installer for the launcher.

Controller - Ignition Gateway

localhost:8088/web/designer-launchers?6

Controller admin | Log Out

Ignition! Help Get Designer

Home > Designer Launcher Download

Trial Mode 1:54:18 We're glad you're test driving our software. Have fun. Activate Ignition

Download the Designer Launcher

We've detected you're on Windows. Download the Designer Launcher for Windows and follow these steps below to install.

[Download for Windows](#)

Alternative Designer Launcher

The Designer Launcher is also available for these operating systems.

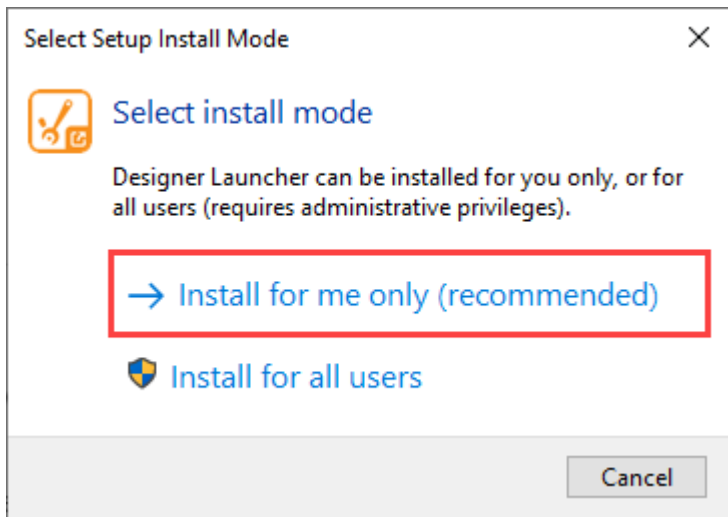
Operating System	File Size
Windows	62.3MB
Mac	50.7MB
Linux	72.6MB

- 1. Run the Designer Launcher Installer**
Click Run or Save to initialize the download.
*If you chose Save, **double-click** the download to start installing.
- 2. Follow Setup Instructions**
Follow the instructions to get the Launcher installed on your computer. After the installation is complete you will be asked if you want to launch now.
- 3. Provide Firewall Access**
On the majority of windows machines you will need to allow access to the firewall for the application to work properly. Windows Defender will prompt you the first time you run the application. **Click Allow Access.**

3. Locate the installer on your local system (web browser typically store downloaded files in a "Downloads" folder), and run it.
4. Work through the install wizard. There are only a handful of options in the installer:
 - Whether or not to create a desktop icon
 - The installation directory for the launcher

Windows **Mac OS** **Linux**

If this is a first time install, the Designer Launcher wizard has an additional step. It will prompt you to select the install mode. Installing locally installs the launcher in the user's AppData\Roaming folder whereas 'all users' installs it in Program Files.



5. Once the installation process reaches its end, click **Finish**.

The Designer Launcher will open, allowing you to start adding applications.

Upgrading Launchers

Whenever an application is launched from a launcher, the Launcher will check to see if it needs an update. If the Gateway containing the launched application is several revisions ahead of the Launcher, the Launcher will provide a popup notifying you that an update is available.

Manual upgrades can also be performed. Simply download and run a new launcher installer from a more recent Ignition Gateway. During installation, simply set the installation directory to the same directory as the old launcher.

New in 8.1.21 You can return the Vision Client Launcher, Perspective Workstation, and Designer Launcher product versions using your operating system's terminal (PowerShell for Windows). The following tabs list the commands for returning the version number by operating system:

Windows

Mac OS

Linux

Vision Client

```
(Get-Item -Path 'C:\{Vision Client Launcher Installation  
Directory}\visionclientlauncher.exe').VersionInfo.ProductVersion
```

Perspective Workstation

```
(Get-Item -Path 'C:\{Perspective Workstation Installation  
Directory}\perspectiveworkstation.exe').VersionInfo.ProductVersion
```

Designer

```
(Get-Item -Path 'C:\{Designer Launcher Installation  
Directory}\designerlauncher.exe').VersionInfo.ProductVersion
```

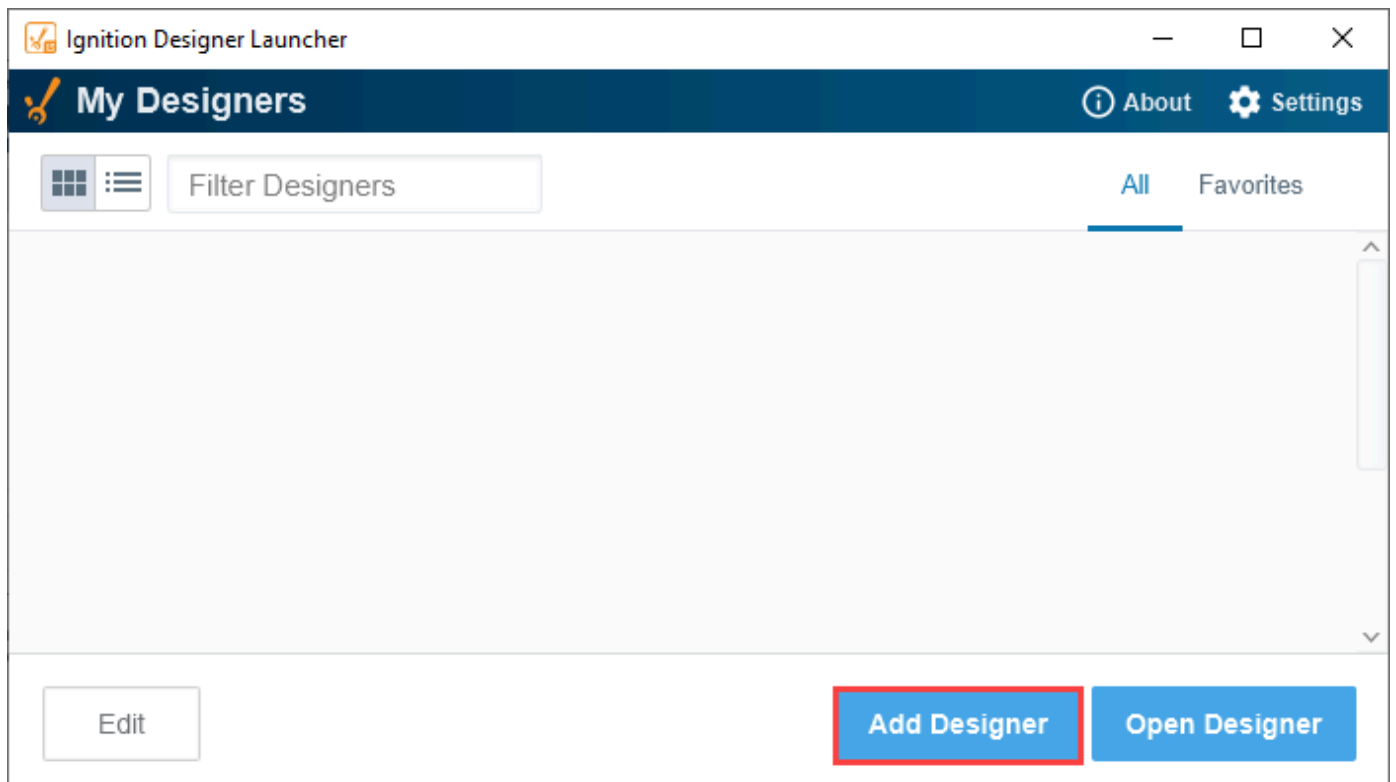
Changed in 8.1.42 Starting in 8.1.42, the launcher file versions will match the product version listings. The file version was previously listed as the Ignition version appears.

Adding Applications

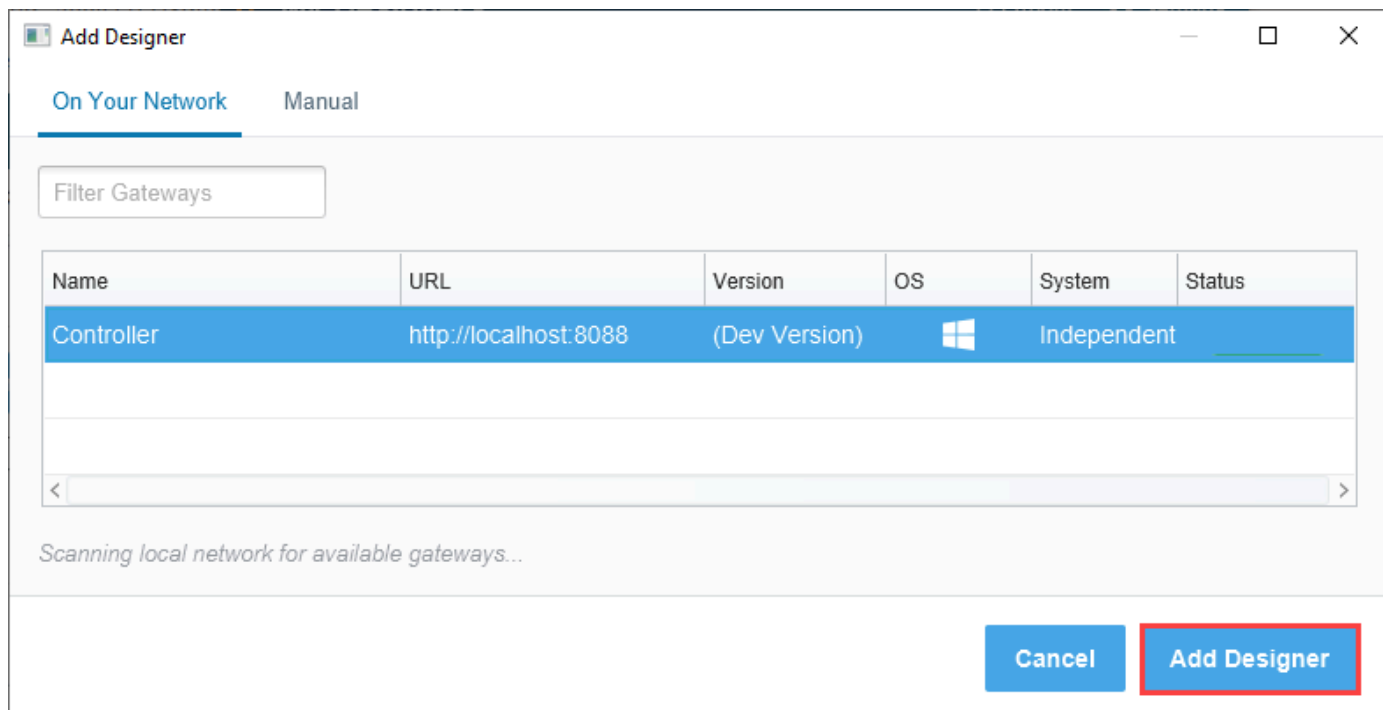
The process for adding applications/Designers to the Designer Launcher is very similar to adding applications to the Vision Client Launcher and Perspective Workstation. This section demonstrates how to add new Applications.

The following Designer Launcher example is used to show how to add applications for the Designer and Vision Client Launchers and the Perspective Workstation.

1. With the launcher open, click the **Add Designer** button.

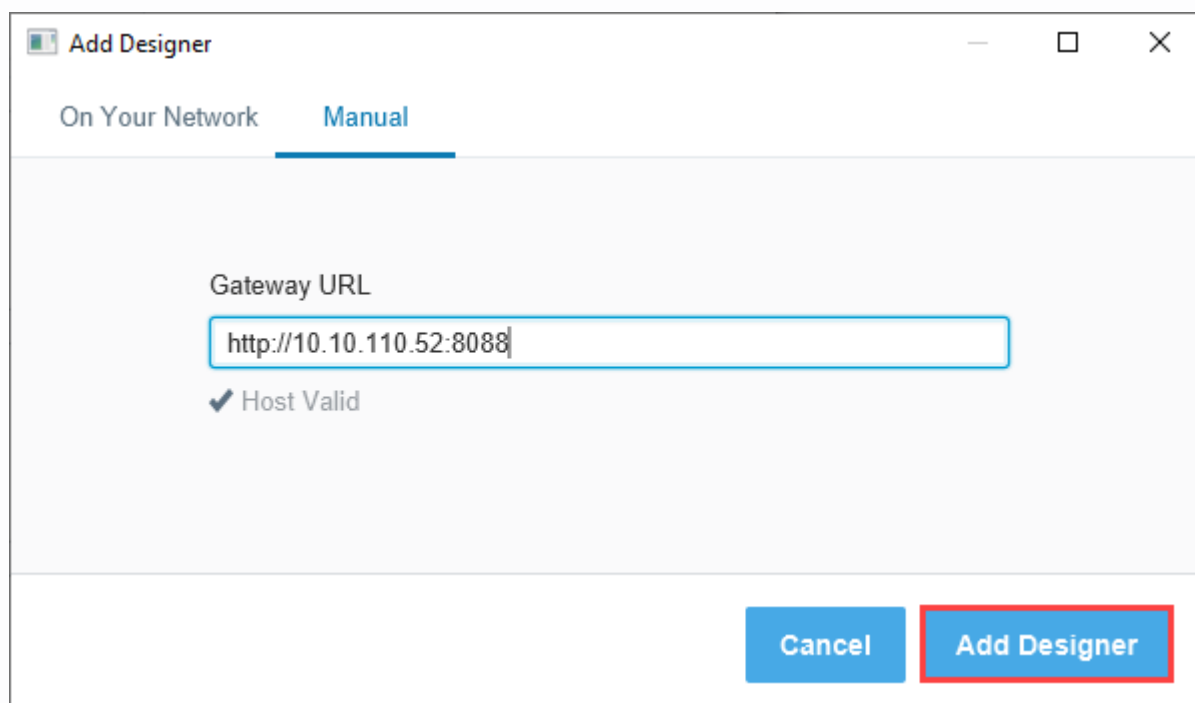


2. The launcher will browse and list all the available Gateways on your network. Select from any of the available gateways and press the **Add Designer** or **Select Gateway** button depending on which Launcher you are using.

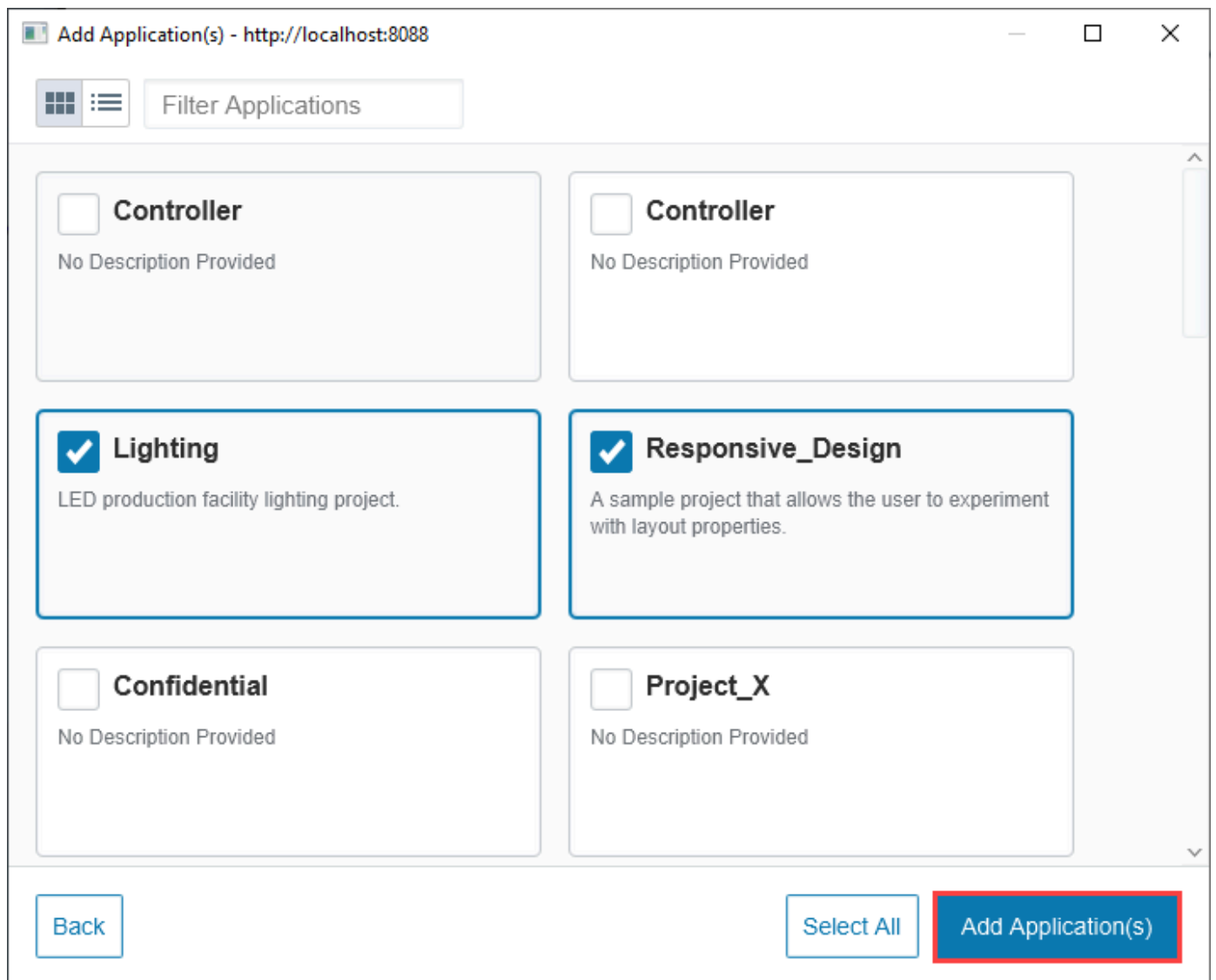


NOTE

If you don't see the Gateway you're looking for, but know the IP address, you can enter it manually. Click the **Manual** tab and enter the **Gateway URL**. It will inform you if you have a valid host name. If so, click **Add Designer** or **Select Gateway** depending what launcher application you are are using.



3. If you're adding an application to the Vision Client Launcher or Perspective Workstation, you'll have this extra step where you can select from any of the available projects on the Gateway. Select the desired projects, then click **Add Application(s)**.



4. Once added, the new applications will appear on the starting screen of the Launcher.

Windows Silent Installations

The **Designer Launcher**, **Vision Client Launcher**, and **Perspective Workstation** can be installed on Windows systems from command line without any user prompts.

```
# Shows a simplified user interface
C:\Users\user\Downloads\VisionClientLauncherSetup.exe /CURRENTUSER /SILENT

# Shows no user interface at all.
C:\Users\user\Downloads\VisionClientLauncherSetup.exe /CURRENTUSER /VERYSILENT

# The following option installs silently without installing a desktop shortcut
C:\Users\user\Downloads\VisionClientLauncherSetup.exe /CURRENTUSER /VERYSILENT
/MERGETASKS="!desktopicon"
```

Using ALLUSERS may trigger a check from User Account Controls, so you may need administrator access for the following command to offer a truly silent installation:

```
C:\Users\user\Downloads\VisionClientLauncherSetup.exe /ALLUSERS /VERYSILENT
```

Hosted Launcher Installers

Normally, each Ignition Gateway includes files for the various launchers. When you download a launcher from a Gateway, it will stream its local launcher files. However, you can override this behavior, causing the Gateway to ignore its local launcher files and instead download launchers from the internet. For more information, see the [Gateway Configuration File Reference](#) page.

New in 8.1.21

Installers for Windows systems in .msi format are available on the Inductive Automation [downloads](#) page. To access them, click on either "Other operating systems and versions" or "Other Versions" on the downloads page, and scroll down to the "Launchers" section.

The `.msi` installers help make pre-deployment easier in enterprise environments and utilizes existing Windows Installer toolchain features. Notably, `.msi` installers support two features which make large-scale deployments easier:

- Transforms
- Group Policy Objects (GPOs)

You can read more about [transforms](#) and [Group Policy](#) on Microsoft's website.

If you wanted to download one of our hosted launchers, without modifying your Gateway's configuration file, you can download them directly from your web browser:

```
https://releases.inductiveautomation.com/launchers/VERSION/LAUNCHER
```

Where VERSION is the Ignition version (i.e., 8.1.0), and LAUNCHER is the name of the launcher. Launcher names are listed below.

Launcher	Operating System	Launcher Name
Vision Client	Windows	visionclientlauncher.exe
Vision Client	Windows	visionclientlauncher.msi
Vision Client	Linux	visionclientlauncher.tar.gz
Vision Client	macOS	visionclientlauncher.dmg
Perspective Workstation	Windows	perspectiveworkstation.exe
Perspective Workstation	Windows	perspectiveworkstation.msi
Perspective Workstation	Linux	perspectiveworkstation.tar.gz
Perspective Workstation	macOS	perspectiveworkstation.dmg
Designer	Windows	designerlauncher.exe
Designer	Windows	designerlauncher.msi
Designer	Linux	designerlauncher.tar.gz
Designer	macOS	designerlauncher.dmg

For example, the following would download an 8.1.0 version of Perspective Workstation for Windows:

Example

<https://files.inductiveautomation.com/launchers/8.1.0/perspectiveworkstation.exe>

Custom Shortcuts

When a shortcut to an application is created, a launchable link is placed on the desktop of the user. This link uses the configuration of the application that is saved in the launcher. This ensures that updates to the launcher are respected even if the link was created before the changes. That being said, you can override the following settings for the shortcut itself:

- "window.mode"
- "timeout"
- "screen"
- "retries"
- "init.heap"
- "max.heap"
- "fallback.application"
- "custom.jre.path"

The values for these settings can be found elsewhere in this User Manual: general launchers settings are on the [Launcher Settings](#) page, while each of the three launcher pages list settings unique to particular launcher.

Windows Mac OS Linux

1. Create a shortcut.
2. Right-click and select **properties**.
3. Add additional arguments to the end of the Target field:

```
...application=test window.mode=fullscreen
```

Redirect Client Launch Cache

You can also redirect the cache directory that is used by the launcher. Typically the user's cache is in their home directory in the `.ignition` directory. This holds all the resources that are required for launching a Client as well as the resources for each launcher. Sometimes this is not desirable, for example in cases where you want a global cache that all users on a machine rely on or when you want the users client cache to reside in a different directory under AppData.

To change this directory, place a file named `redirect.txt` inside the `.ignition` directory in their user home directory. This file should have a single line in it which is an **absolute** path to the appropriate file.

Signature Verification

The Vision Client and Designer Launchers include checks that run when launching a Designer or Vision Client to test if the Gateway is active. The default value for this check is `LENIENT`.

New in 8.1.40

Users can choose to adjust the security level of this check by changing the `signature.verification.strength` key in Vision Client or Designer JSON files. The path to these files differs by operating system, but they will generally look like the following:

Vision Client

```
C:\Users\userName\.ignition\clientlauncher-data\vision-client-launcher.json
```

Designer

```
C:\Users\userName\.ignition\clientlauncher-data\designer-launcher.json
```

The following options can be used for the `signature.verification.strength` key:

- STRICT: Revocation checks are required and legacy Gateways are disallowed.
- MODERATE: Soft fail on revocation checks and legacy Gateways are disallowed.
- AIR_GAPPED: No revocation checks performed, but legacy Gateways are still disallowed.
- LENIENT: Soft fail on revocation checks, but legacy Gateways are allowed.
- LOOSE: No revocation checks and legacy Gateways are allowed.

New in 8.1.34 For added security when launching, the Designer and Vision Client Launchers now perform signature verification against the `launchclient.jar` to verify the file and all of its contents. An error message will display if the `launchclient.jar` file's signature is invalid and launching is prohibited.

Designer Launcher



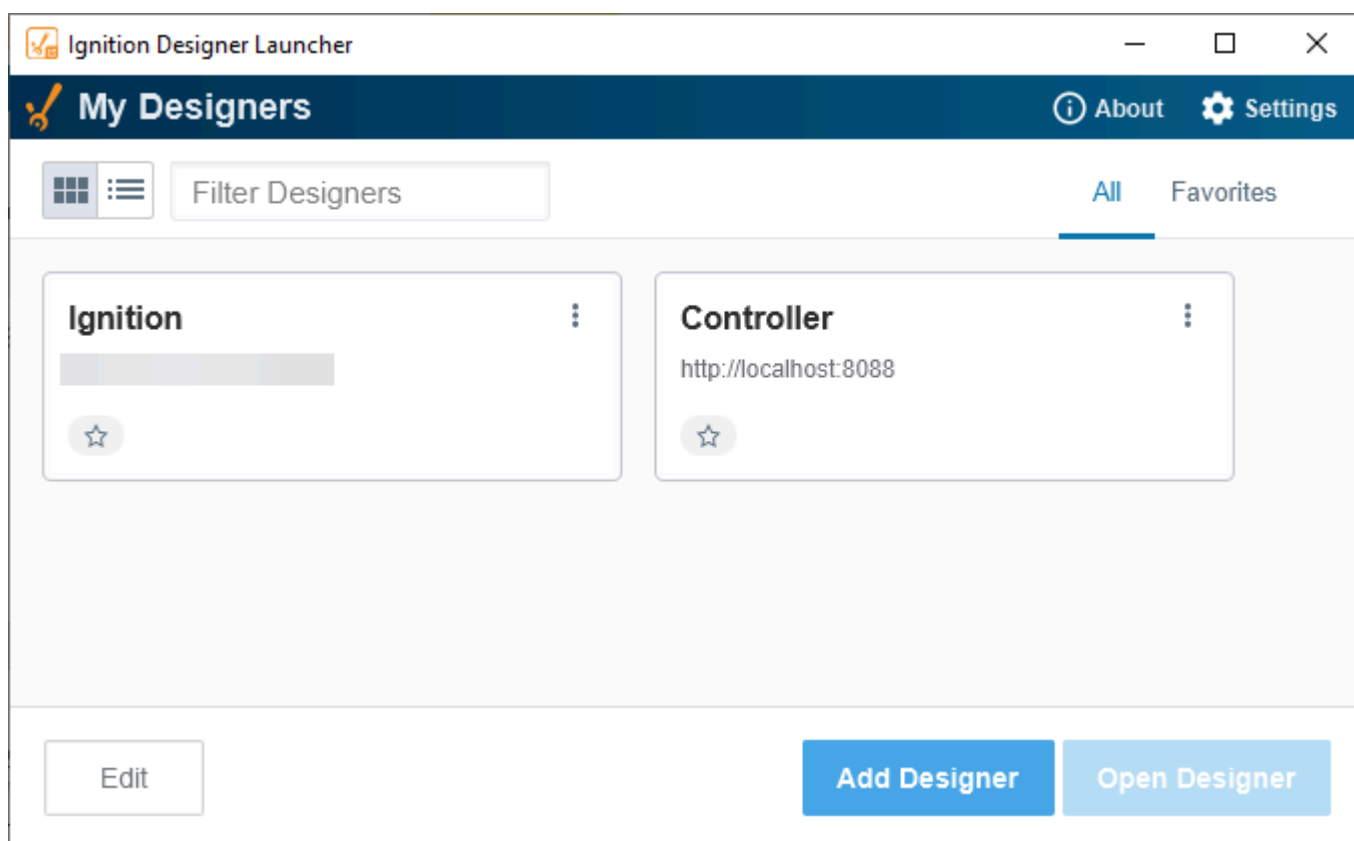
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The Designer Launcher

[Watch the video](#)

The Designer Launcher is used to launch the Designer and connect to a Gateway. It displays a list of Designer cards, each representing a configured Gateway connection and its associated launch settings. From the Launcher, you can open projects, manage Designer settings, and access Gateway resources.

The Designer Launcher is available from the **Home** section of the Gateway. For information on setting up the Designer Launcher, see the [Launchers and Workstation](#) page.



Each Designer card includes a three dots menu that provides actions for managing and interacting with the Designer configuration without opening it.

Menu Item	Description
Manage	Opens the General Settings Configuration window.
Go to Gateway	Opens the Gateway in a new browser window.
Create Shortcut	Creates a desktop shortcut for the Designer.
Add to Favorites	Adds the Designer to your Favorites.
Export	Exports the Designer configuration as a JSON object.
Delete	Deletes the Designer.

General Settings

The Designer Launcher provides application-specific settings for each Designer. To access these settings, click the **three dots menu** on a Designer card and select **Manage**.

Configure Controller

General

Designer Name

Controller

Gateway Address

http://localhost:8088

Timeout

Retries

Init Heap

Max Heap

30

-1

64M

1024M

JVM Arguments

ACTIONS

Export Config

Create Desktop Shortcut

Cancel

Ok

Apply

Setting Name	Description
Designer Name	Specifies the name of the Designer. New in 8.1.5 This field is required.
Gateway Address	Specifies the Gateway address in the format <code>http[s]://host:port</code> .
Timeout	Defines the maximum number of seconds allowed for Gateway communication. If the timeout is exceeded, the Launcher aborts the request and retries it if retries are configured.
Retries	Defines how many times the Launcher retries a request after a communication error occurs. Available values include: • -1: The Launcher retries indefinitely until it is closed. • 0: The Launcher does not retry after the first failure. • 1 (or greater): The Launcher retries the specified number of times. If retries are exhausted, the Launcher attempts to launch the fallback application.
Initial Heap	Specifies the initial heap size, in memory, allocated to the Designer.
Maximum Heap	Specifies the maximum heap size, in memory, allocated to the Designer.
JVM Arguments	Specifies additional JVM arguments for the Designer. The Launcher copies the defaults from the global JVM arguments at creation time and does not update them if the global settings change.

Perspective Workstation

New in 8.1.0



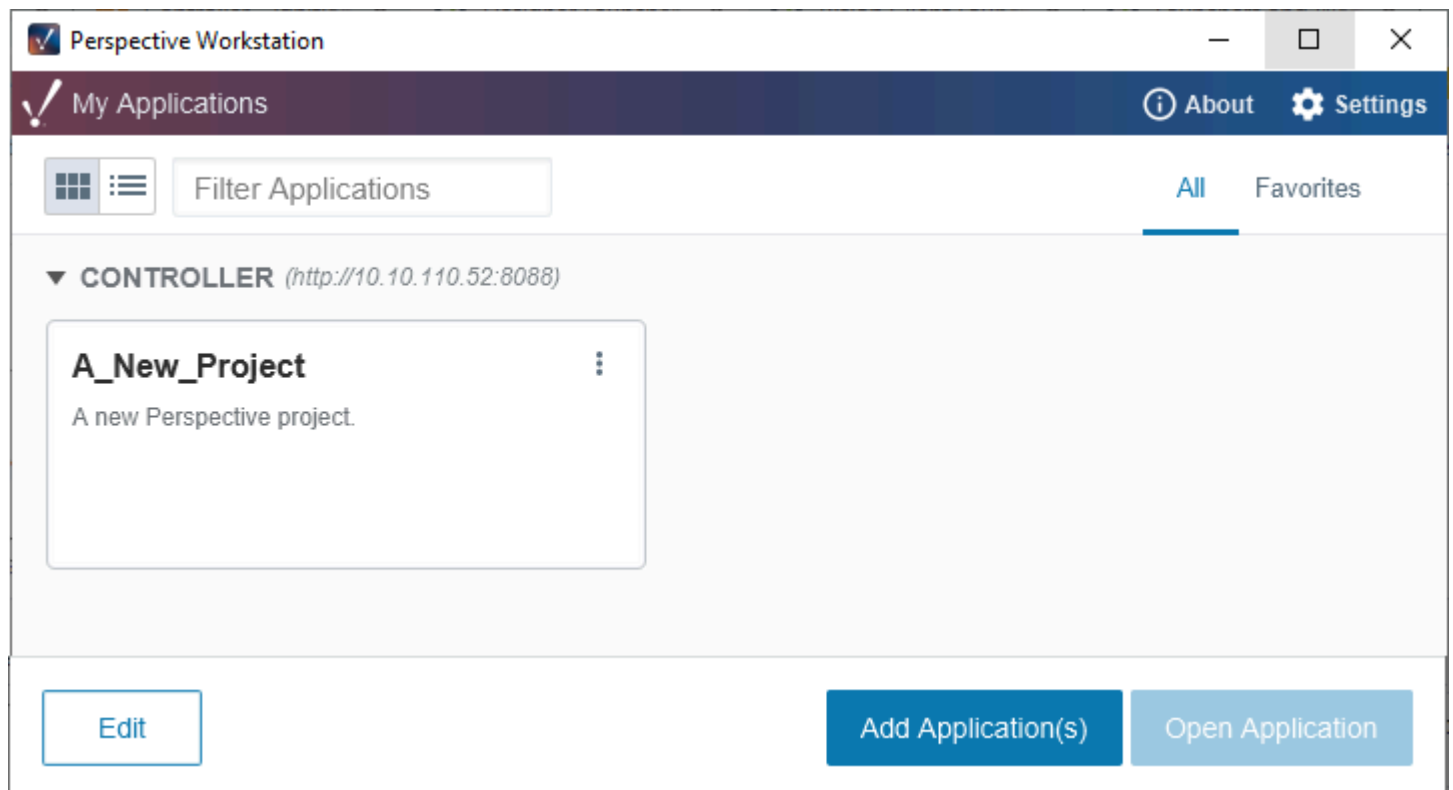
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Perspective Workstation

[Watch the video](#)

Perspective Workstation is a single application that functions as both a launcher and a desktop wrapper for Perspective Sessions. It allows you to run Perspective projects as desktop applications designed for HMIs, panel PCs, and dedicated workstations.

Perspective Workstation supports both Windowed mode and full-screen Kiosk mode, which helps reduce distractions from the underlying operating system. It also provides features for managing applications on dedicated workstations with multiple monitors, allowing sessions to launch on specific displays.



NOTE

Perspective Workstation can only launch sessions from Ignition 8.1 or newer Gateways.

Managing Workstation Settings

Perspective Workstation application settings are specific to each Perspective Session. To access Workstation settings, click the **three dots menu** for the Session application and select **Manage**. This will open the project's Configure popup where you can adjust the **Perspective Workstation Application Settings**. Some settings are automatically populated from previous setup configurations.

Some settings are automatically populated when you open the **Manage** view and navigate between configuration screens.

Launch Modes

Perspective Workstation supports both Windowed mode and full-screen Kiosk mode. These modes determine how the Session window behaves and how much access users have to the underlying operating system.

Tab and Window Links

The Tab/Window Links setting controls how Perspective Workstation handles links that would normally open in a new browser tab. You can configure these settings to allow links to open in the system browser, open within Workstation, or be blocked entirely.

Multi-Monitor Support

Perspective Workstation supports multi-monitor configurations by allowing a single application to open multiple operating system windows, with each window displayed on a different monitor. Each monitor can display a different Perspective page.

When you configure multi-monitor settings, Workstation automatically detects available displays and lists them on the Page Configuration tab. You can assign a Perspective page to each display and designate a primary display for login dialogs and authentication prompts.

If the **Page** field is empty, no content appears on that display. If the field contains a **Page URL**, Workstation loads the specified page on that monitor. The **Identify Displays** option provides an on-screen overlay that helps you match display numbers to physical monitors.

NOTE

The default Display 1 Page URL for a new application is `/`, which loads the default page configured in the Designer. For more information on configuring pages within the Designer, see [Page Configuration](#).

Perspective Component Actions and Scripts

Perspective components can access Workstation-specific features that allow projects to control Workstation behavior.

- The [Component Events and Actions](#) page describes the Workstation component action, which allows a running Workstation application to switch launch modes.
- The [system.perspective.workstation](#) scripting namespace provides additional functions that allow you to interact with a running Workstation application.

Perspective Workstation Application Settings

To access application settings, click the **three dots menu** for the Session application and select **Manage**. The sections below describe the available configuration options.

Configure A_New_Project

General

Page Configuration

Advanced

Application Name

A_New_Project

Launch Mode

Windowed

Tab/Window Links

Blocked

Description

A new Perspective project.

Gateway Address

http://10.10.110.52:8088

Project URL

/data/perspective/client/A_New_Project

http://10.10.110.52:8088/data/perspective/client/A_New_Project

ACTIONS

Export Config

Create Desktop Shortcut

Cancel

Ok

Apply

Perspective Workstation application settings are configured per application. To configure settings that apply to the Launcher itself, see the [Launcher Settings](#) page.

General Application Settings

Property	Description
Application Name	Specifies the name of the application as it appears in the Launcher.
Launch Mode	Specifies how the application launches by default. Available options include: • Windowed: Launches in a window. • Kiosk: Launches in full-screen mode and restricts access to the operating system.
Tab/Window Links	Specifies how Workstation handles links that would normally open in a new browser tab. Available options include: • Blocked: Does not open. • In Window: Opens within Workstation. • System Browser: Opens in the system's default browser.
Description	Provides a description of the application. The description appears on the My Applications screen.
Gateway Address	Specifies the Gateway address in the format <code>http[s]://host:port</code> .
Project URL	Specifies the URL path of the Perspective page that loads when the application starts.

Page Configuration Settings

Property	Description
Identify Displays	Displays overlay labels that identify available monitors.
Page	Specifies the Perspective page to display on the assigned monitor.
Primary Display	Specifies the display used for logins and authentication dialogs.

Advanced Fallback Redirect Settings

New in 8.1.6 As of 8.1.6, Perspective Workstation provides advanced fallback redirect settings that control how an application behaves during extended Gateway outages after initial launch. Instead of immediately relying on automatic failover, you can configure Workstation to redirect users to a different application after a defined delay. These settings also allow Workstation to automatically return users to the original application once communication with the master Gateway is restored.

Connection Settings

Property	Description	Property Type
Connect Timeout	Specifies how long Workstation attempts to connect to the Gateway before giving up. The duration is measured in seconds.	value: integer
Retries	Specifies how many connection attempts occur before Workstation redirects to the fallback application.	value: integer

Fallback Redirect Settings

Property	Description	Property Type
Fallback Redirect	Enables fallback redirect behavior for the application. The default value is false.	value: boolean
Fallback Application	Specifies the application that launches if the master Gateway connection is unavailable. The list includes applications configured in the current Workstation installation.	value: string
Auto-Return	Enables automatic return to the original application when the Gateway becomes available again. The default value is false.	value: boolean
Launch Delay	Specifies how long the application must remain disconnected before redirecting to the fallback application. The duration is measured in seconds, and the default value is 30.	value: integer

Perspective Workstation On-Screen Keyboard

New in 8.1.4 As of 8.1.4, Perspective Workstation can integrate with the operating system’s on-screen keyboard. If an on-screen keyboard is enabled in the operating system, it automatically appears within a running Perspective Session when user input is required, such as when a Text Field component is selected.

NOTE

The on-screen keyboard does not appear when you interact directly with Perspective Workstation configuration screens.

Redundancy

Perspective Workstation supports redundant Gateway configurations to help maintain application availability during Gateway outages after a Session is successfully launched. When redundancy is

configured, Workstation automatically attempts to connect to a backup Gateway if the master Gateway is unavailable at startup. If the master Gateway cannot be reached, Workstation attempts to connect to the backup Gateway. If neither Gateway is available, Workstation alternates connection attempts until a connection is established or the application is closed.

Command Line Arguments

You can launch Perspective Workstation from the command line using the arguments listed below.

Argument	Description
<code>application</code>	Specifies the name of the Workstation application to launch.
<code>debugPort</code>	Specifies the debug port used by the launched application. The default value is 9224. Changed in 8.1.44 The <code>debugPort</code> argument now requires an application to be specified to function as expected. For example, <code>.\perspectiveworkstation.exe application=test debugPort=9224</code> will work, but <code>.\perspectiveworkstation.exe debugPort=9224</code> will not work.
<code>launch.mode</code>	Overrides the application launch mode. Available values include: <code>WINDOWED</code>: Launches in Windowed mode. <code>KIOSK</code>: Launches in full-screen Kiosk mode.
<code>browser.tab.mode</code>	Overrides the tab and window link behavior. Available values include: <code>BLOCKED</code>: Does not open. <code>IN_WINDOW</code>: Opens within Workstation. <code>SYSTEM</code>: Opens in the system's default browser.
<code>config.json</code>	Specifies a configuration file to use as a temporary override. The file must be a JSON export created using the Export Launcher Config option in the Workstation Settings menu. For example, <pre>"C:\Launchers\Perspective\Workstation.exe" config.json="C:\Users\MyUser\Desktop\workstation.json"</pre>
<code>devTools</code>	Opens a Chromium DevTools popup with your Workstation session to help diagnose issues when debugging. As with <code>debugPort</code>, you must specify an application when using this argument.

System Requirements

Perspective Workstation uses JxBrowser and requires a supported 64-bit operating system. ARM-based operating systems are not supported. For more information, see the [JxBrowser System Requirements](#) documentation.

The bundled Perspective Workstation for macOS supports Apple Silicon only. An alternate build for Intel-based Macs is available from the Inductive Automation [Downloads](#) page.

Vision Client Launcher

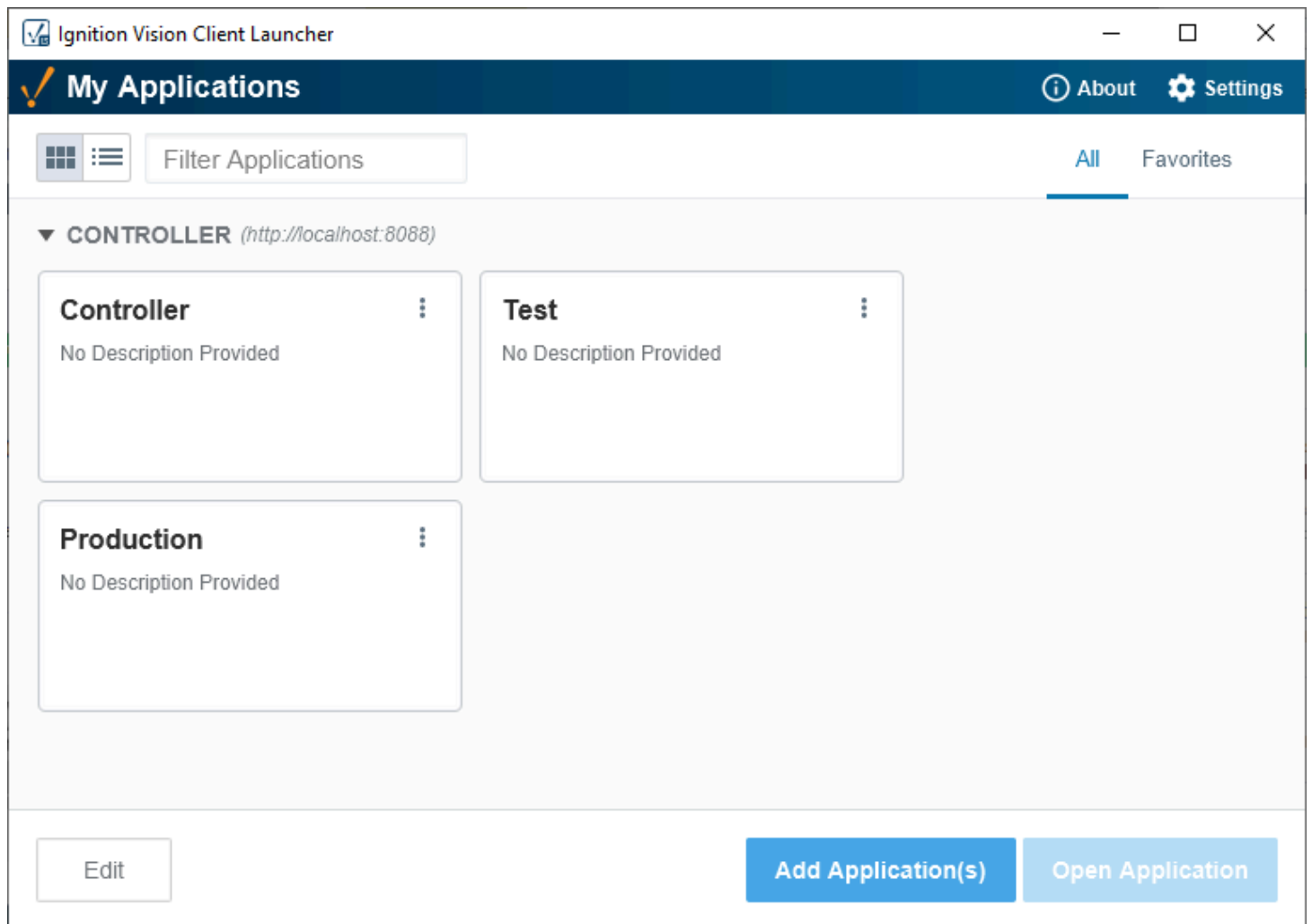


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Launching a Client

[Watch the video](#)

The Vision Client Launcher opens Vision Clients from an Ignition Gateway. Once your Vision projects are added to the Vision Client Launcher, they will be displayed under **My Applications** and organized by Gateway. This page describes the unique Vision Client Launcher settings, deploying the launcher, and Command Line Arguments.



The Vision Client Launcher is available on the **Home** section of the Gateway Webpage. More information on installing any of the Launchers can be found on the [Launchers and Workstation](#) page. For information on accessing Vision projects remotely, refer to the [Accessing Projects Remotely](#) section.

Vision Client Application Settings

This section details settings for applications in the Vision Client Launcher. To access the settings, click on the three menu dots on the **My Applications** window and select the **Manage** option. The General tab will open. The table below shows the General settings that can be applied to each designer.

Vision Client Launcher Application Settings

Setting Name	Description
Application Name	The descriptive name of the application. This is independent of the project name that corresponds to a project on the gateway. Instead, this is the name of the application as it is defined in the Launcher.
Gateway Address	The address to the Gateway in the format http[s]://host:port
Description	An optional description for the application that will be listed on the Application in the launcher. Defaults to the Project's description.
Vision Client Project	The name of the project containing Vision resources that the Application will attempt to launch. New in 8.1.5 As of 8.1.5 the Vision Client Project field is required.
Fallback Application	The name of the application (configured in the same launcher) to use if the number of retries has been exceeded. The fallback is only utilized if the Retries setting is greater than 0.
Image Path	This will allow the icon of the application to be set within the designer and it will be downloaded and displayed as the icon for the application as well as the shortcuts. If no path is set, the default icon is used. If this is set to a different icon path, that icon will be used. The image path notation is a filepath on the local system. New in 8.1.5 Supported image formats now include PNG, SVG, GIF, and JPEG files.
Window Mode	Controls the Client mode. Available options are: <code>window</code>: Launches the Client in Windowed Mode <code>fullscreen</code>: Launches the Client in Fullscreen Mode
Screen Index	The screen index indicates which monitor to use.
Timeout	The maximum number of seconds to allow for any Gateway communication. Any communication that exceeds this amount will cause

Setting Name	Description
	the Vision Client Launcher to abort the communication and try again if configured.
Retries	How many times to attempt to contact a Gateway again if an error occurred during communication. Available values are: • -1 : Retry indefinitely, or until the Launcher is manually closed. • 0 : Zero retries, or abort after the first failure. • 1 (or more): Determines the number of retries: i.e., a value of 5 means five retries. If the number of retries is exceeded, then the Launcher will attempt to launch the Fallback Application. If the number of retries is exceeded, then the Launcher will attempt to launch the Fallback Application.
Init Heap	The initial heap memory size for the Client.
Max Heap	The maximum heap memory size for the Client.
JVM Arguments	Arguments to append to Client startup. These should start with a <code>-D</code> and be separated by semi-colons.

General

Client Tag Overrides

Application Name

My Project

Gateway Address

http://localhost:8088

Description

Vision Client Project

MyProject

Fallback Application

Image Path

Window Mode

Screen Index

window

0

Timeout

Retries

Init Heap

Max Heap

30

-1

32M

256M

JVM Arguments

ACTIONS

Export Config

Create Desktop Shortcut

Cancel

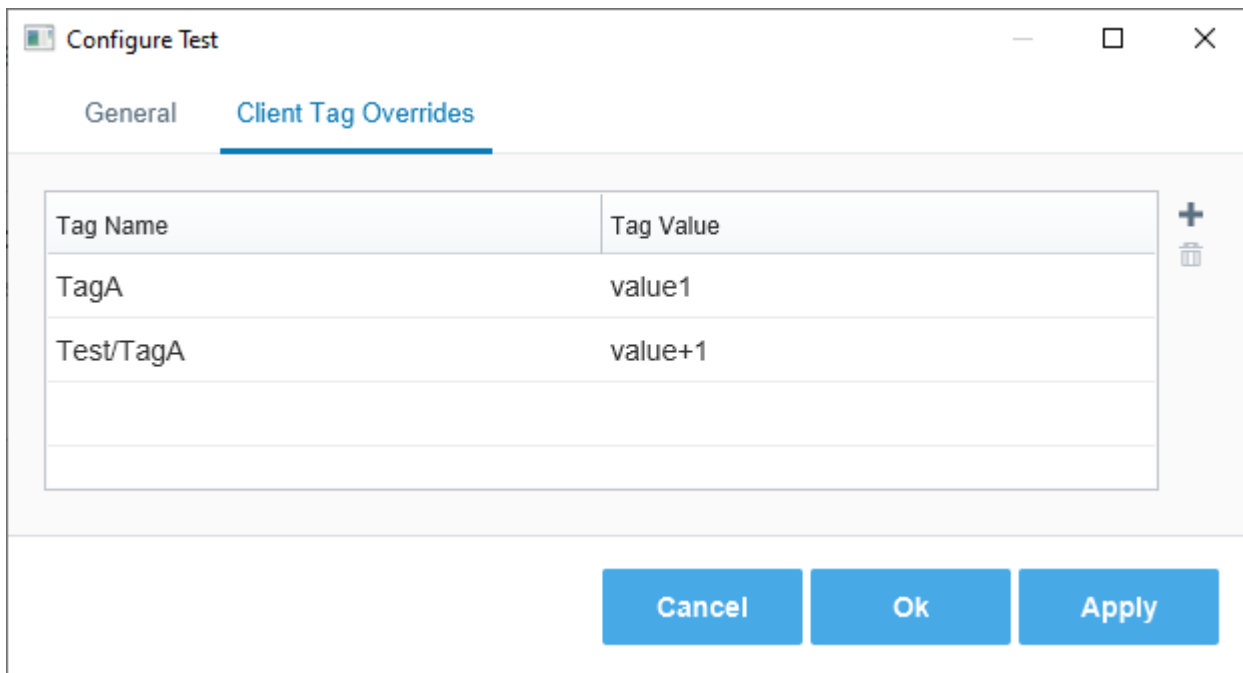
Ok

Apply

Vision Client Tag Override Settings

Click on the **Client Tag Overrides** tab to create or update any tags. The table below shows the Client Tag Override setting that can be applied to each Designer.

Setting Name	Description
Client Tag Overrides	Allows Client tags to be overridden on the Vision Client. These are set using the table on the application configuration screen by adding rows with the names of the tags and the corresponding values. When applying the overrides from command line, the tags must first be defined as launch parameters, then a value can be set on the parameters. Vision Client Tag overrides within folders and passing Client tag overrides are supported by using a '+' icon as an escape character. This happens automatically if you are configuring overrides in the Client Launcher. To learn more about how to configure Client Tag Overrides, refer to Overriding Vision Client Tags.



Configure Test

General **Client Tag Overrides**

Tag Name	Tag Value
TagA	value1
Test/TagA	value+1

Cancel Ok Apply

For additional application settings, refer to the [Launchers and Workstation](#) page.

Redundancy

The Vision Client Launcher can take advantage of a redundant Gateway setup. Whenever a connection is established with a master Gateway, the backup Gateway IP address is automatically stored in the Client Launcher configuration file. If the master Gateway cannot be contacted the next time the Client Launcher is run, an attempt is made to contact the backup Gateway. If the backup cannot be contacted, the Client Launcher switches between contacting the primary Gateway and the backup Gateway until one responds or the user closes the Launcher.

Command Line/Terminal

Clients can be launched from the Client Launcher via command/terminal. When called in this way, many of the application properties may be overridden for the one call. The overrides use the same property names as noted in the [Application Property Reference Table](#), under the "JSON name" column.

Windows:

```
"C:\ClientLauncher\visionclientlauncher.exe" application=myproject  
window.mode=window
```

Linux:

```
./visionclientlauncher.sh application=myterminal window.mode=fullscreen screen=0
```

The Vision Client Launcher must be installed and have an application added for the command line/terminal commands to work. There are a few important notes when using the command line/terminal to launch a project from the Vision Client Launcher.

- The **application** argument requires the application name in the Launcher, not the project name. You can open the Launcher to determine what the application name is. Adding new applications in the Launcher uses the Project title by default.
- Applications may contain spaces in their name. However, when launching from command/terminal, spaces should be escaped with **%20**. For example, if our application was named **my project**, then we could call it with the following:

```
"C:\ClientLauncher\visionclientlauncher.exe" application=my%20project
```

Command Line Arguments

Argument	Description
<code>application</code>	The name of the application to launch.
<code>window.mode</code>	Controls the Client mode. Available options are: <code>window</code>: Launches the Client in Windowed Mode <code>fullscreen</code>: Launches the Client in Fullscreen Mode
<code>screen</code>	The screen index indicates which monitor to use.
<code>fallback.application</code>	The name of the application to use if the number of retries has been exceeded.
<code>timeout</code>	The maximum number of seconds to allow for any Gateway communication and try again if configured.
<code>retries</code>	How many times to attempt to contact a Gateway again if an error occurs. -1 : Retry indefinitely, or until the Launcher is manually closed. 0 : Zero retries, or abort after the first failure. 1 (or more): Determines the number of retries: i.e., a value of 5 means 5 retries. If the number of retries is exceeded, then the Launcher will attempt to launch the application again.
<code>init.heap</code>	The initial heap size (memory) for the Client.
<code>max.heap</code>	The maximum heap size (memory) for the Client
<code>-Djavaws.launchparams</code>	Defines Client tags that can be overwritten upon launch. The use of this argument requires an additional argument that utilizes the tag names delimited by a semicolon: <pre>// Establishes the tag names -Djavaws.launchparams="Tag1;Tag2" // Sets values on the tags -Djavaws.launchparams.Tag1=10 -Djavaws.launchparams.Tag2=20 //An actual call would look like: "C:\ClientLauncher\visionclientlauncher.exe" application=myapp</pre>

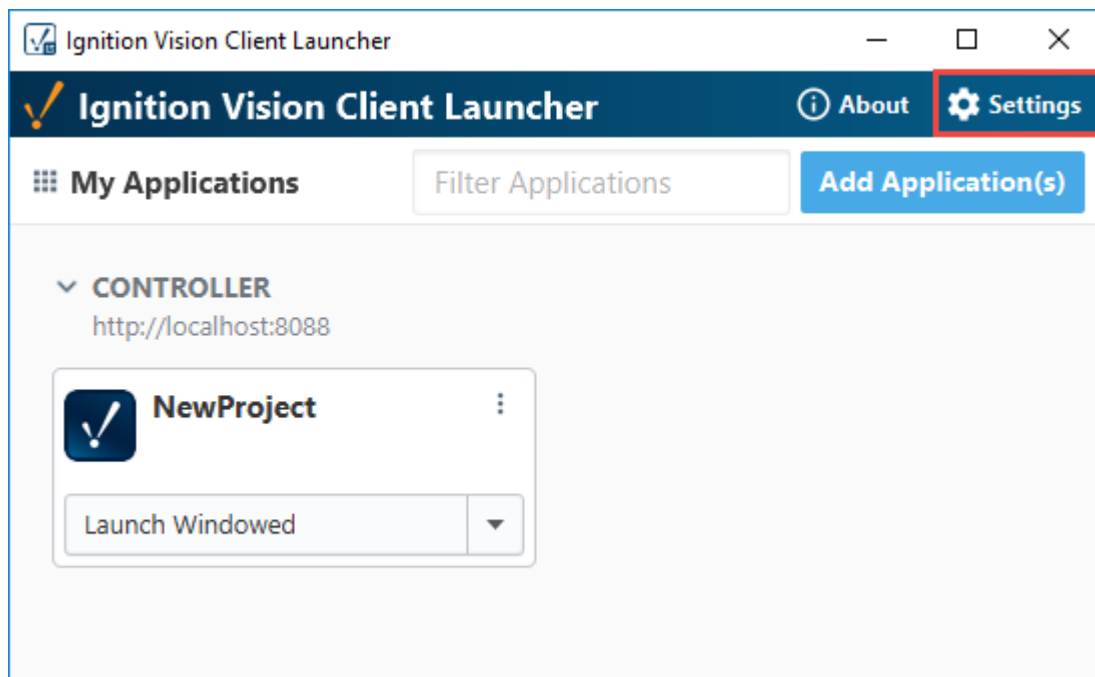
Argument	Description
<code>config.json</code>	Allows you to point the Launcher to a launcher configuration file from command line overrides. The argument expects a path to a JSON export file, specifically the file <code>launcherconfig.json</code> from the <code>launcherconfig</code> folder. <pre>"C:\ClientLauncher\visionclientlauncher.exe" config.json="C:\ClientLauncher\launcherconfig\launcherconfig.json"</pre>

Vision Client Launcher Settings

You have the option of customizing the Vision Client Launcher settings. This can be accomplished with either the GUI or by modifying a [file on the local file system](#). Regardless of method, both utilize the properties specified under the [Vision Client Launcher Settings Reference Table](#).

Launcher Settings

You can find the **Settings**  button in the upper right corner of the Vision Client Launcher.



You can choose to use the default settings or customize your Client applications. There are three different **Actions** in **Settings** in the Vision Client Launcher:

- **Export Launcher Config:** Exports a configuration of the the Vision Client Launcher, as a JSON file (i.e., `vision-client-launcher.json`). Taking an export is useful in cases where you want multiple launcher instances to use the same settings. The content of the export file is based on the last saved configurations settings of the Launcher.
- **Import Launcher Config:** Imports your launcher configurations from a Vision Client Launcher export file.
- **Import Application Config:** Creates a new Client application configuration from an export, adding a new application to the Launcher. The import file is the same generated by an [application export](#).

When finished updating any of the Client Launcher settings, click the **Save Changes** button. Refer to the list of additional launcher settings in the [reference table](#) below.

Ignition Vision Client Launcher

Ignition Vision Client Launcher

AboutSettings

Launcher Settings

CancelSave Changes

GENERAL SETTINGS

Default Application

Logging Level

INFO

Multicast Address

231.1.1.1

Multicast Port

4446

Auto Exit on Launch

NEW APPLICATION SETTINGS

Timeout

30

Retries

-1

Init Heap

Max Heap

JVM Arguments

Client Tag Overrides

Tag Name	Tag Value
Click '+' to add a Client Tag Override	

TRUSTED CERTIFICATES

Common Name	Expiration
Click '+' to add a trusted Certificate	

ACTIONS

Export Launcher Config

Import Launcher Config

Import Application Config

Launcher Configuration Using JSON

In addition to using the GUI, these configurations changes can be made by modifying the `vision-client-launcher.json` file (created during installation of the launcher). The file is located at:

```
{user folder}\.ignition\clientlauncher-data\vision-client-launcher.json
```

The preferred method of configuration is with the GUI, but JSON modification is useful when attempting to load multiple application configurations simultaneously.

A reference to the various properties that can be modified via JSON are listed in the [Vision Client Launcher Settings Reference Table](#). However, the JSON file has the following setting that isn't available from the GUI:

- `lock.configuration`: When set to true, the application list and individual application configurations cannot be modified. Effectively restricting the ability to add applications and edit the launcher's configurations.

Vision Client Launcher Settings Reference Table

Launcher Settings - Configurations for the Launcher

Property Setting	Description	JSON Name
Default Application	When set, the Launcher will attempt to automatically launch the specified Application when running. If left blank, no application will automatically start.	default.application
Logging Level	Level of logging that will be used for the Launcher: INFO, TRACE, DEBUG, WARN, and ERROR.	logger.level
Multicast Address	The address that will be used to listen for multicast broadcasts from Gateways.	multicast.address
Multicast Ports	The port that will be used to listen for multicast broadcasts from Gateways.	multicast.receive.port
Auto Exit on Launch	Automatically close the Launcher window when a Client is started.	autoexit

Application Defaults - Default Configurations for New Applications

Property Setting	Description	JSON Name
Timeout	Maximum number of seconds allowed for any Gateway communication. Any communication that exceeds this amount will cause the Client Launcher to abort the communication and try again if configured.	timeout
Retries	The number of times a Client will attempt to contact a Gateway again if an error occurred during communication. Available values are: • -1 : Retry indefinitely, or until the launcher is manually closed. • 0 : Zero retries, or abort after the first failure. • 1 (or more): Determines the number of retries: i.e., a value of 5 means five retries.	retries
Initial Heap	Amount of memory to be allocated at startup.	init.heap
Max Heap	Maximum amount of memory allocation for heap size.	max.heap
JVM	Arguments to append to Client startup. These should start with a <code>-D</code> and be separated by semi-colons.	jvm.arguments
Client Tag Overrides	Client tags and their values that are set when the Client launches.	client.tag.overrides

Trusted Certificates

You can add security certificates to the Launcher.

While attempting to launch an application, the Launcher will check against the application's host Gateway, and attempt to automatically download any required certificates. In addition, certificates can be manually added using the example below.

1. Access Vision Client Launcher settings by clicking **Settings** on the top right of the Vision Client Launcher window.
2. In the Trusted Certificates section, click the **Add**  icon.

Ignition Vision Client Launcher

✓ Ignition Vision Client Launcher

About

Settings

Launcher Settings

CancelSave Changes

GENERAL SETTINGS

Default Application

Logging Level

INFO

Multicast Address

231.1.1.1

Multicast Port

4446

Auto Exit on Launch

NEW APPLICATION SETTINGS

Timeout

30

Retries

-1

Init Heap

Max Heap

JVM Arguments

Client Tag Overrides

Tag Name

Tag Value

+

Click '+' to add a Client Tag Override

TRUSTED CERTIFICATES

Common Name

Expiration

+

Click '+' to add a trusted Certificate

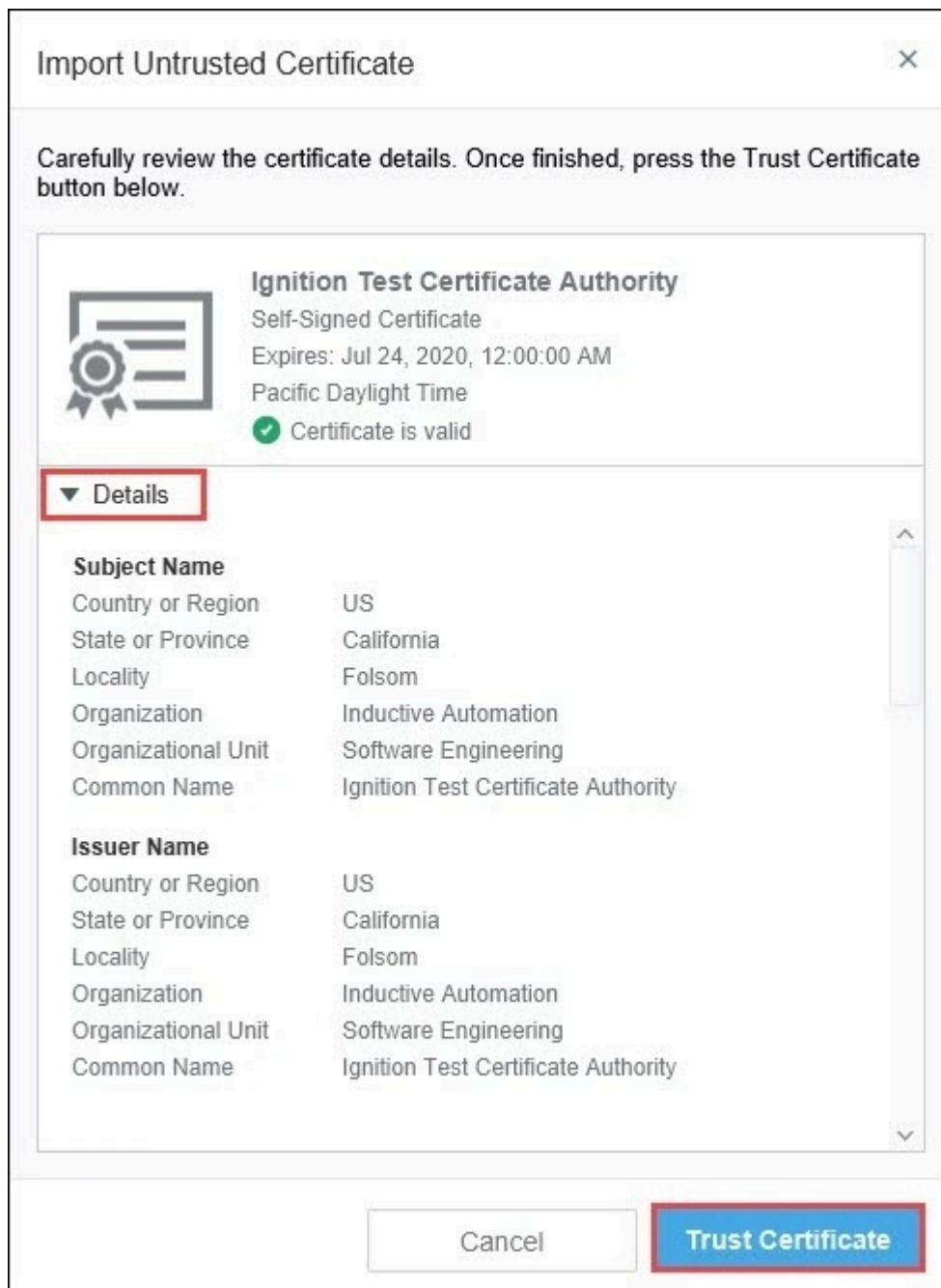
ACTIONS

Export Launcher Config

Import Launcher Config

Import Application Config

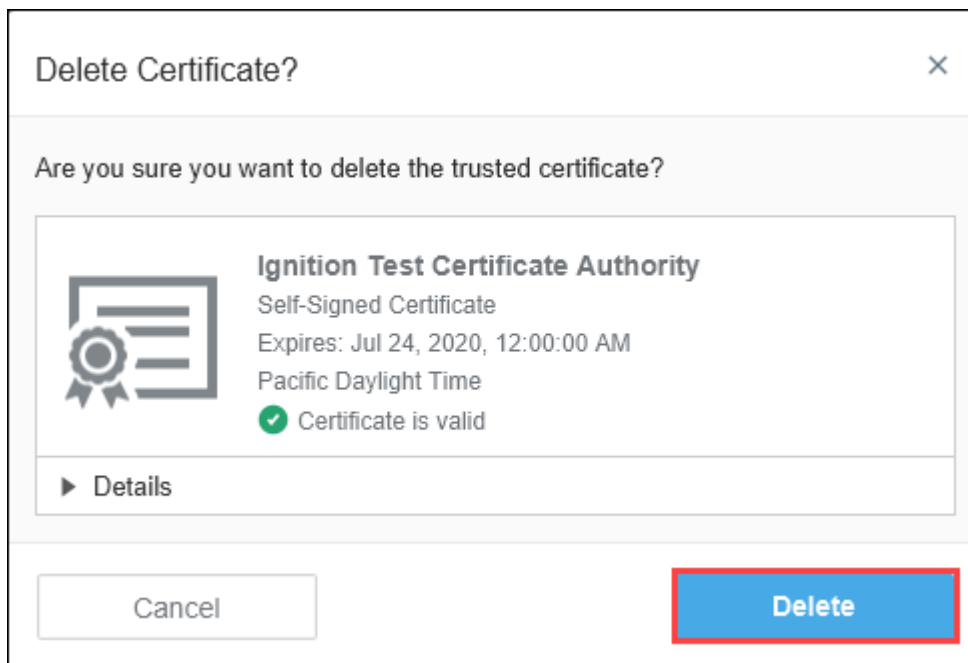
3. Navigate to the location of the certificate on your system and choose **Open**.
4. Information about the certificate is displayed. To view complete details, click the **Expand**  icon next to Details. If everything looks OK, click **Trust Certificate**.



5. Once a certificate is imported, you can view its details by clicking the **Information**  icon.

Delete a Certificate

1. To delete an imported certificate, access Vision Client Launcher settings by clicking **Settings** on the top right of any Vision Client Launcher window.
2. In the Trusted Certificates section, select the certificate you want to delete.
3. Click the **Delete**  icon.
4. You'll get a confirmation window. If the certificate is the correct one you want to delete, click the **Delete** button.

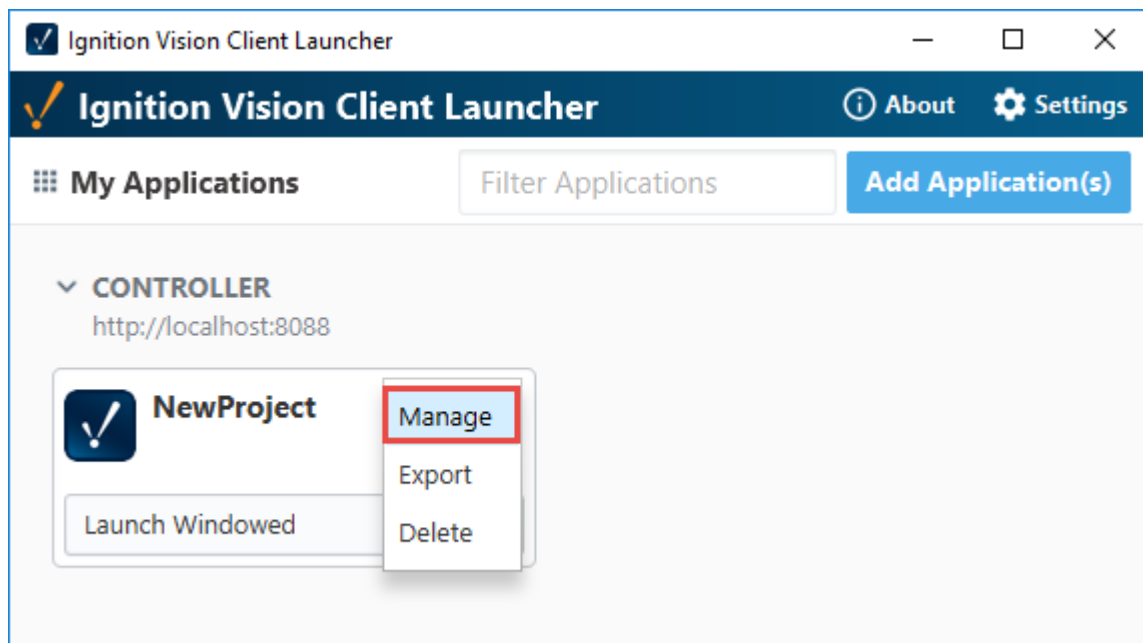


Export a Certificate

1. To export an imported certificate, access Vision Client Launcher settings by clicking **Settings** on the top right of any Vision Client Launcher window.
2. In the Trusted Certificates section, select the certificate you want to export.
3. Click the **Export**  icon.
4. Navigate to the location you want to save the certificate and click **Save**.

Launcher Application Settings

For each project application, you can update the default settings by clicking the **three dots menu**  icon next to the project name, and select **Manage** to open the Manage Project Settings window. The **Export** command exports the configuration settings to a `.json` file. The **Delete** command deletes the project application from the launcher.



You can choose to use the default settings or customize your Client applications. There are three different **Actions** under **Manage Project Settings** in the Vision Client Launcher.

- **Launch Application:** Launches the your application in the Vision Client Launcher.
- **Export Config:** Exports your updates to the Vision Client Launcher file (i.e., `vision-client-launcher.json`). The resulting export file contains the last saved configuration of the application.
- **Create Desktop Shortcut:** Creates a shortcut to your application on your desktop, using the last **saved** application configuration.

When finished updating any of the launcher settings, click the **Save Changes** button.

Ignition Vision Client Launcher

Ignition Vision Client Launcher

AboutSettings

/ Manage 'NewProject'

CancelSave Changes

Application Name

NewProject

Gateway Address

http://localhost:8088

Description

Vision Client Project

NewProject

Fallback Application

Image Path

VisionIcon

Window Mode

window

Timeout

30

Init Heap

32M

Screen Index

0

Retries

-1

Max Heap

256M

JVM Arguments

Client Tag Overrides

Tag Name	Tag Value

+

-

Click '+' to add a Client Tag Override

ACTIONS

Launch Application

Export Config

Create Desktop Shortcut

Application Property Reference Table

Setting Name	Description	JSON Name
Application Name	The descriptive name of the application. This is independent of the project name that corresponds to a project on the Gateway. Instead, this is the name of the application as it is defined in the Launcher.	application
Project	The Vision project that exists on the Gateway that this application will load.	project
Description	An optional brief note about the application. The description will appear in the Launcher. If left blank, a description will not appear.	description
Window Mode	Controls the Client mode. Available options are: <code>window</code>: Launches the Client in Windowed Mode <code>fullscreen</code>: Launches the Client in Fullscreen Mode	window.mode
Screen Index	The screen index indicates which monitor to use.	screen
Image Path	This will allow the icon of the application to be set within the Designer and it will be downloaded and displayed as the icon for the application as well as the shortcuts. If no path is set the default icon is used. If this is set to a different icon path, that icon will be used.	image.path
Fallback Application	The name of the application to use if the number of retries has been exceeded. The fallback is only utilized if the Retries setting is greater than 0.	fallback.application

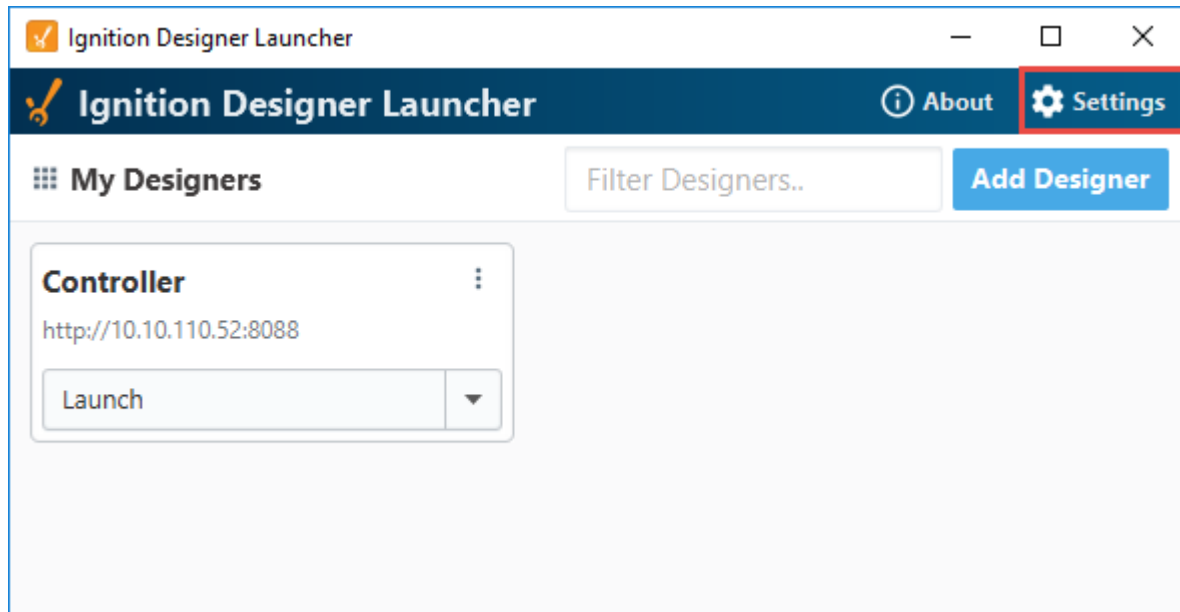
Setting Name	Description	JSON Name
Timeout	The maximum number of seconds to allow for any Gateway communication. Any communication that exceeds this amount will cause the Vision Client Launcher to abort the communication and try again if configured.	timeout
Retries	How many times to attempt to contact a Gateway again if an error occurred during communication. Available values are: • -1 : Retry indefinitely, or until the Launcher is manually closed. • 0 : Zero retries, or abort after the first failure. • 1 (or more): Determines the number of retries: i.e., a value of 5 means five retries. If the number of retries is exceeded, then the Launcher will attempt to launch the Fallback Application. If the number of retries is exceeded, then the Launcher will attempt to launch the Fallback Application.	retries
Init Heap	The initial heap size (memory) for the Client.	init.heap
Max Heap	The maximum heap size (memory) for the Client. Value is set using megabytes, such as 1024M.	max.heap
Client Tag Overrides	Allows Client tags to be overridden on the Vision Client. These are set using the table on the application configuration screen by adding rows with the names of the tags and the corresponding values. When applying the overrides from command line, the tags must first be defined as launch parameters, then a value can be set on the parameters. Vision Client Tag overrides within folders and passing Client Tag Overrides are supported by using a '+' icon as an escape character. This happens	client.tag.overrides

Setting Name	Description	JSON Name
	automatically if you are configuring overrides in the Client Launcher. To learn more about how to configure Client Tag Overrides, refer to Overriding Vision Client Tags .	

Launcher Settings

Launcher Settings

Each launcher has its own settings. To access the settings on a launcher, click **Settings** on the top right of any launcher window.



The Settings popup window will appear, listing settings for the Launcher to use. There are some shared settings, such as those under the **General** tab.

Designer Launcher Settings

General Designer Defaults Trusted Certificates

Default Designer: Controller

Logging Level: TRACE

Multicast Address: 231.1.1.1

Multicast Port: 4446

Auto Exit on Launch: ☐

ACTIONS

Export Launcher Config

Import Launcher Config

Import Application Config

Cancel Ok Apply

Property Settings

The following tables represent common property settings in the **Designer Launcher**, **Vision Client Launcher** and **Perspective Workstation**. There are a few settings that are unique to each launcher application and are addressed on the corresponding launcher page.

General Property Settings

General Settings (Design Launcher, Vision Client Launcher and Perspective Workstation)

Property Setting	Description	JSON Name
Default Application	When set, the Launcher will attempt to automatically launch the specified Application on Launcher startup. If left blank no application will automatically start.	default.application
Logging Level	Level of logging that will be used for the Launcher. Useful for our support team, but can be used to help troubleshoot problems with the Launcher.	logger.level
Multicast Address	The address that will be used to listen for multicast broadcasts from Gateways.	multicast.address
Multicast Port	The port that will be used to listen for multicast broadcasts from Gateways.	multicast.receive.port
Auto Exit on Launch	Automatically close the Launcher window when an application is started.	autoexit

Default Property Settings

Default Settings (Designer Launcher and Vision Client Launcher)

Property Setting	Description	JSON Name
Timeout	Maximum number of seconds allowed for any Gateway communication. Any communication that exceeds this amount will cause the Launcher to abort and try again (if multiple retries are configured).	timeout
Retries	The number of times the Launcher will attempt to contact a Gateway when launching an application. Available values are: • -1 : Retry indefinitely, or until the launcher is manually closed. • 0 : Zero retries, or abort after the first failure. • 1 (or more): Determines the number of retries: i.e., a value of 5 means five retries.	retries
Initial Heap	Amount of heap memory to be allocated to the application on startup.	init.heap
Max Heap	Maximum amount of heap memory allocated to the application.	max.heap
JVM Arguments	Arguments to append to client startup. These should start with a <code>-D</code> and be separated by semi-colons. Mostly used by our support teams to aid with troubleshooting.	jvm.arguments

Designer Launcher Settings

General

Designer Defaults

Trusted Certificates

Timeout

Retries

Init Heap

Max Heap

30

-1

JVM Arguments

Cancel

Ok

Apply

Trusted Certificates Property Settings

The Trusted Certificates tab shows the list of trusted security certificates by their common names and their expiration dates. Users can also add, delete, view certificate details, and export by clicking the respective icons on the right-hand side of the listed certificates. More information on adding certificates is included under [Adding Security Certificates to Clients](#).

Designer Launcher Settings

General

Designer Defaults

Trusted Certificates

Common Name	Expiration
	May 5, 2024, 9:40:58 AM

+

i

Cancel

Ok

Apply

Launcher JSON Configuration Files

The settings for each launcher are stored into a configuration file.

```
Linux/Mac
~/.ignition/clientlauncher-data

Windows
C:\Users\username\.ignition\clientlauncher-data
```

On Windows systems, if the Launcher was installed under "all users", then the configuration files are located in directories under:

```
C:\Users\username\AppData\Roaming\Inductive Automation\
```

In either case, each type of launcher gets its own JSON configuration file. Launcher and application settings can be modified directly from this configuration file. In addition, some administrative settings are only available in the JSON configuration file. Configuration changes must be made while the Launcher is closed. Notable settings are listed below.

Settings	Description
lock.configuration	Determines if users are able to make changes to the Launcher from the GUI. Set to true to disable the Launcher's Settings menu, prevent users from managing any application from the GUI, and remove the ability to add new applications from the GUI. Defaults to false.
version.updates.prompt	When a launcher attempts to launch an application, it checks the Gateway version against the Launcher's download version. If the Launcher has not been updated within a set number of Gateway updates versions (see version.updates.revision.diff), the launcher will prompt the user to upgrade the Launcher. Setting this property to false will disable this update check. Disabling this property is discouraged, as newer launchers could have beneficial features or security updates.
version.updates.revision.diff	Dictates the number of revision differences before a launcher will prompt the user to upgrade. Defaults to 3, meaning 3 minor version updates (for example, 8.1.0 to 8.1.3 would trigger the update prompt, but 8.1.0 to 8.1.2 would not).
trust.store	New in 8.1.19 Allows the Launcher to specify which trust store to use. See the Trust Stores section for more details.

Trust Stores

The table below lists possible values you can use to utilize different trust stores.

trust.store value	Windows	Mac OS	Linux
system	Windows-ROOT	KeychainStore	ca-certificates
user	Windows-MY	KeychainStore	ca-certificates
jvm	Java internal cacerts	Java internal cacerts	Java internal cacerts

The OS trust stores detailed in the table above will be used by running Designers, Vision Clients, and Perspective Workstations once launched. Default is **jvm**. which will match existing behaviors of launchers that support certificate imports from within the application. All trust store types which are not jvm require launching Clients and Designers against Gateways which include support for the specified type. Retargets also conform to this requirement. Additionally, non-jvm trust stores will map to their named Java Trust Store, with the exception of **ca-certificates**.

To change the trust.store value for your launchers, you will need to first exit the launcher (if it isn't already closed), then edit the trust.store property in your launcher's `.json` file. This file is typically located at

```
C:\Users\[YOUR USERNAME]\.ignition\clientlauncher-data.
```



```
1  {
2    "global": {
3      "client.defaults": {
4        "timeout": 30,
5        "retries": -1,
6        "init.heap": null,
7        "max.heap": null,
8        "use.custom.jre": false,
9        "custom.jre.path": "${JAVA_HOME}/bin/java",
10       "jvm.arguments": [],
11       "client.tag.overrides": {}
12     },
13     "autoexit": false,
14     "default.application": "",
15     "multicast.address": "231.1.1.1",
16     "multicast.receive.port": 4446,
17     "lock.configuration": false,
18     "logger.level": "INFO",
19     "version.updates.prompt": true,
20     "version.updates.revision.diff": 3,
21     "trust.store": "jvm"
22   },
23 }
```

The trust.store property is the last property in the global class

Aside from specifying the trust.store value that you would like the launcher to use, there may be additional, operating system-specific steps you need to go through.

Windows

1. Make sure the Launcher you want to update the trust store for is closed.
2. Reinstall the .crt file. You can do this by opening the .crt file and clicking **Install Certificate...**
3. Select which users you would like to install the certificate for. Note that you may need administrative permissions to install the certificate for the local machine.
4. Select the store where you want the certificate to reside.
 - If you are installing the certificate for the current user, you should put the certificate in the `Personal` store.

- If you are installing the certificate for the local machine, you should put the certificate in the `Trusted Root Certification Authorities` store.

5. Once the wizard finishes installing the certificate, press **Finish** to complete the operation.

MacOS

1. Make sure the Launcher you want to update the trust store for is closed.
2. Add your certificate to your operating system's KeychainStore.
3. Make sure that the certificate you added is trusted either manually or automatically.

Linux

1. Make sure the launcher you want to update the trust store for is closed.
2. Run the following commands in the terminal:

Linux Terminal Commands

```
$ sudo apt-get install -y ca-certificates
$ sudo cp local-ca.crt /usr/local/share/ca-certificates
$ sudo update-ca-certificates
```

3. Your operating system will then copy any certificates to their appropriate directories and then update the certificate bundle.

NOTE

For additional information on installing certificates in Linux's trust store, see [Ubuntu's official documentation](#).

CA certificates will instead load PEM bundles or certificate directories as defined by the CA certificates package available for most Linux distributions. Because of this, CA certificates also support two additional system properties, which are listed in the table below:

Property	Description
<code>ignition.net.ssl.certDir</code>	System property to use when you are using ca-certificates and want your certificate to load an openssl compliant certificate directory.
<code>ignition.net.ssl.pemBundle</code>	System property to use when you are using ca-certificates and want your certificate to load a PEM bundle.

Adding Security Certificates to Clients

Security certificates can be installed to all of our launchers in multiple ways. This is generally only required when the Gateway hosting the application has SSL enabled, and is using either self-signed certificates or certificates signed by a certificate authority internal to a particular organization.

The process is listed below. Note that you will need to repeat the steps below for each applicable Gateway.

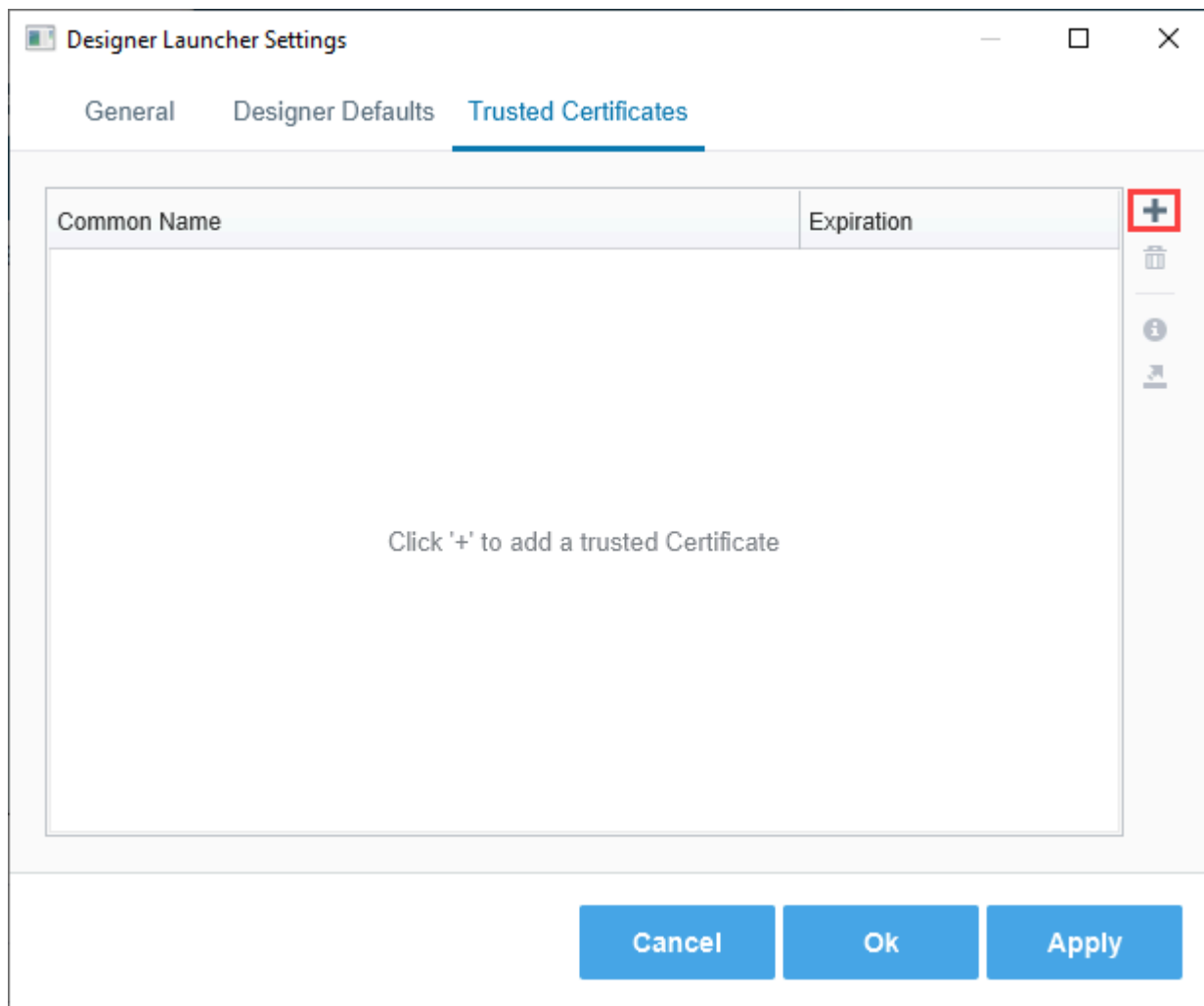
1. Navigate to the Gateway web interface.
2. Download the certificate. Most web browsers provide this functionality, usually via the address bar or some other means.
3. Once you have a copy of the certificate, place the certificate into the following directory:

```
{user folder}\.ignition\clientlauncher-data\certificates
```

When adding certificates to this directory, they are trusted immediately with no further action required by the user.

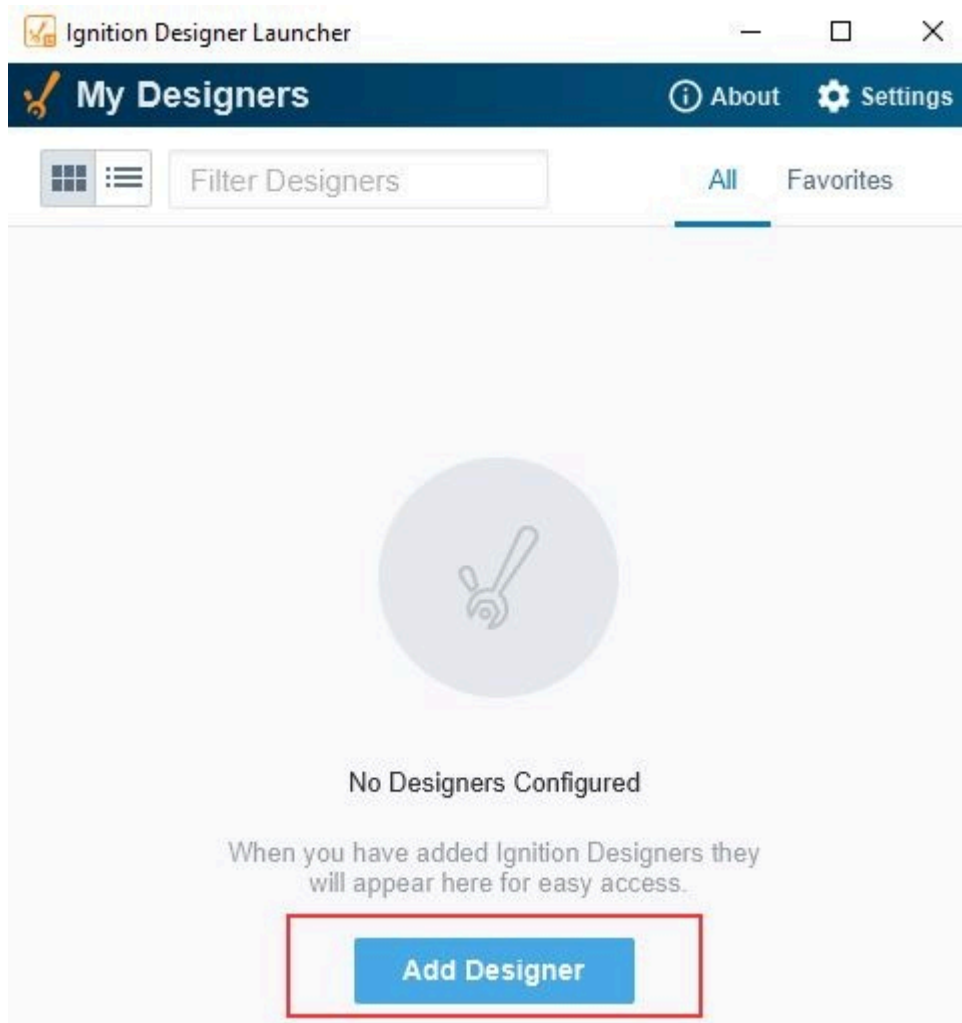
Additionally, there are two more ways to manually add security certificates to the launcher. Both of these methods will mimic the behavior of certificates imported using a trust store. Using the Trusted Certificates tab of the Designer Launcher's settings allows any server with that certificate in its chain of trust to be trusted going forward. However, if you only want to add a single server, you should use the **Manual** tab on the **Add Designer** pop up. The process for trusting a single server's certificate uses the Designer Launcher, but the procedure is the same for the Vision Client Launcher, and the Perspective Workstation.

To add a Trusted Certificate and allow all servers with that certificate to be accepted, click the **Add**  icon on the **Trusted Certificates** tab of the Designer Launcher Settings.

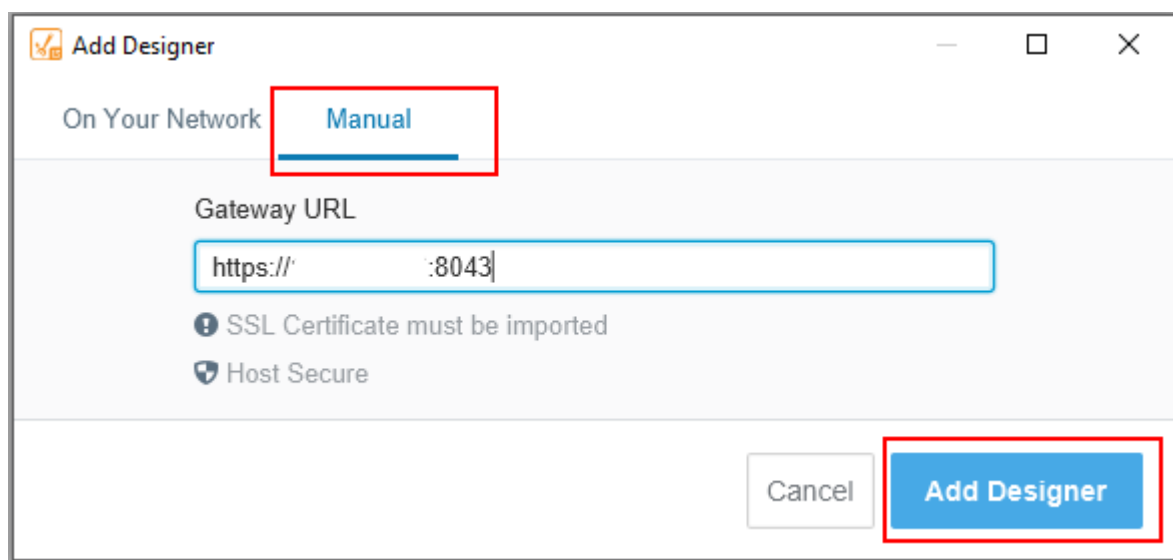


To manually trust a single server's security certificate:

1. Open the Designer Launcher, and select **Add Designer**.



2. Select **Manual**, and search for your secure gateway server (https and port 8403). The designer launcher will detect the certificate and the message *SSL Certificate must be imported* will be displayed. To view the certificate, click on **Add Designer**.



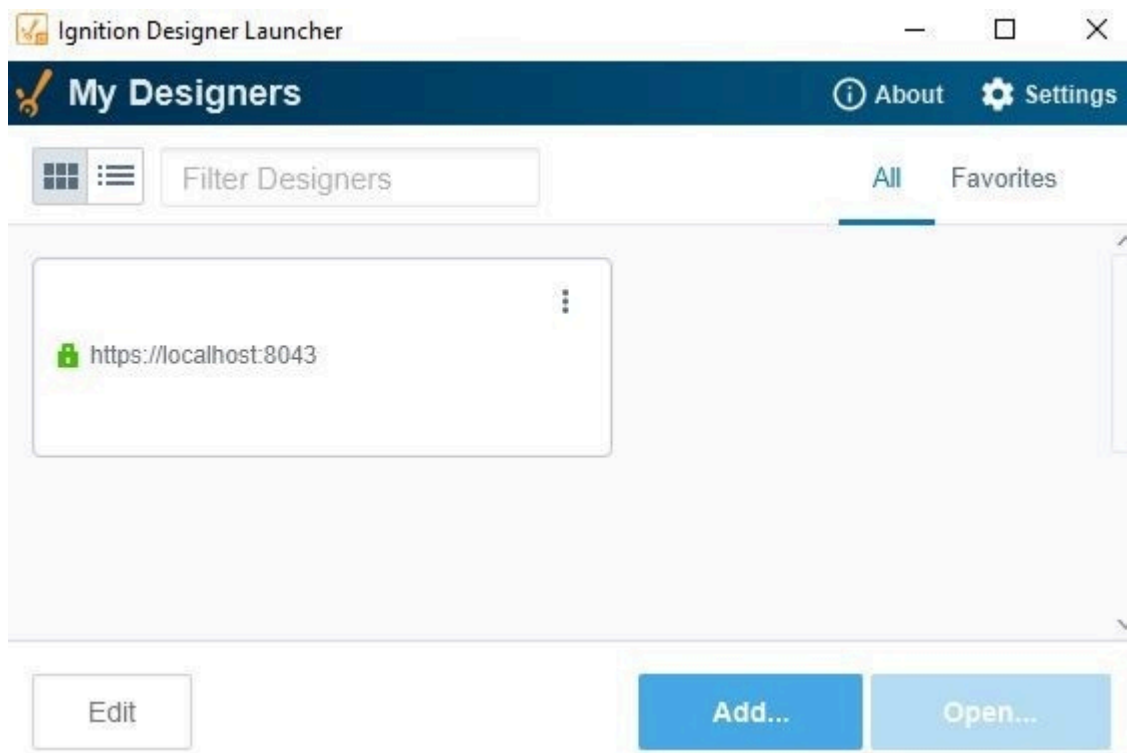
3. Once you've reviewed the certificate, select **Trust Certificate** to import the certificate.



NOTE

The certificate will be imported to this directory on your client pc:
C:\Users{user}.ignition\clientlauncher-data\certificates.

4. The secure designer will now be added to your Designer Launcher with a green lock icon next to the Gateway URL.



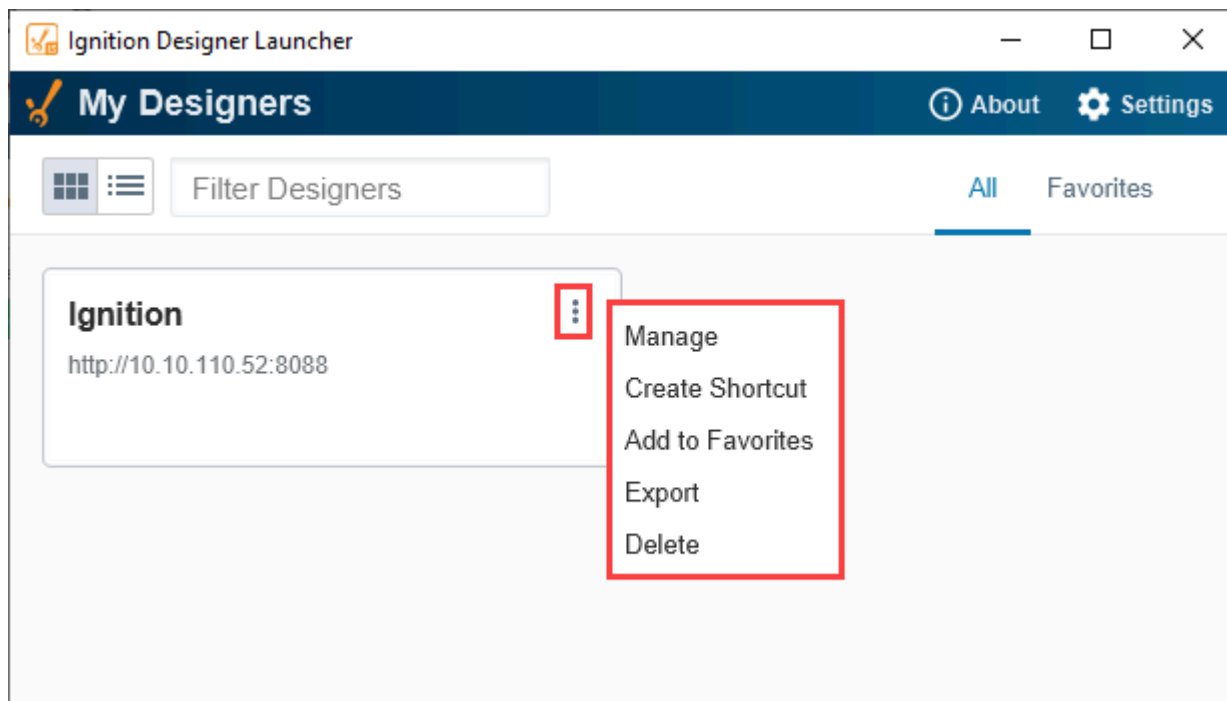
As stated above, the directory where the Trusted Certificates are now stored is under:

```
{user folder}\.ignition\clientlauncher-data\certificates
```

When the Gateway's SSL certificates are signed by a recognized Certificate Authority, no additional configuration is required on the launcher.

Options Menu

There is a three dots menu on the applications in each of the launchers and Perspective Workstation. When you click on the three dots menu, a dropdown list appears. There are five options available.



Launcher Options Table

Options	Description
Manage	Allows you to configure/update property settings for your application. These properties are unique to each launcher application.
Create Shortcut	Creates a shortcut of the application and shows up as an icon on your desktop.
Add to Favorites	Creates a Favorite in your application and puts it under the Favorites tab located in the upper right corner. Your application is marked with a star icon denoting a Favorite.
Export	Exports the application launcher and configuration settings to a JSON file. It defaults to the application name and you provide the folder path.
Delete	Deletes/removes the application name from the Launcher application.

NOTE

To view the property settings under the **Manage** option, refer to the specific launcher application: [Designer Launcher](#), [Vision Client Launcher](#) and [Perspective Workstation](#).

Deploying Pre-Configured Launchers

You can deploy a pre-configured launcher to remote systems to avoid installing and configuring the launcher on each machine individually. This approach involves installing and configuring a launcher on one system, packaging the launcher files into a compressed archive, and then extracting that archive on another system.

This page describes how to package the components of a configured launcher and deploy them to another system.

Benefits of a Pre-Configured Launcher

Deploying a pre-configured launcher provides the following benefits:

1. The launcher's configuration remains consistent regardless of where it is deployed.
2. Required directories and launch files (including SSL certificates stored in the `clientlauncher-data/certificates` directory) are included with the deployment.
3. The local cache used to launch applications remains separate from the launcher configuration, keeping the deployment portable and lightweight.

NOTE

This page uses a Vision Client Launcher. The same procedure can be used to deploy the Perspective Workstation or Designer Launcher.

Components of a Configured Launcher

A pre-configured launcher consists of the following components:

- The launcher executable
- The JRE for the launcher
- The configuration JSON file

NOTE

If the configuration JSON file isn't located in the correct directory, the launcher will create a new, empty configuration file.

Configure the Launcher

1. Install a Vision Client Launcher on a system of your choice and take note of the installation directory. You will copy files from this directory in the next section.
 - On Windows systems, this is commonly at `C:\Program Files\Inductive Automation\Ignition`.
 - On Linux systems, this is commonly at `/opt/ignition/`.
2. Configure one or more applications in the launcher.
3. Verify that the **Gateway Address** is reachable from the systems where the launcher will be deployed.

The launcher is now fully configured and ready to be packaged for deployment.

Package the Launcher

These steps package the configured launcher into a single ZIP file for deployment.

1. Navigate to the launcher installation directory. This directory contains the launcher and the `jre` folder.

Name	Date modified	Type	Size
 <code>jre</code>	4/26/2019 3:49 PM	File folder	
 <code>clientlauncher.log</code>	4/26/2019 3:49 PM	LOG File	1 KB
 <code>unins000.dat</code>	4/26/2019 3:49 PM	DAT File	20 KB
 <code>unins000.exe</code>	4/26/2019 3:48 PM	Application	820 KB
 <code>visionclientlauncher.exe</code>	4/22/2019 2:36 AM	Application	21,043 KB

2. Copy all files from the launcher installation directory into the **client launcher data** directory. This includes the launcher executable, the `jre` folder, and any supporting files in the directory.
 - On Windows systems, this is located under the home directory at `C:\Users\userName\.ignition\clientlauncher-data`.
 - On Linux systems, this is located at `/home/user/.ignition/clientlauncher-data`.

Name	Date modified	Type	Size
certificates	3/4/2019 12:28 PM	File folder	
jre	4/26/2019 2:39 PM	File folder	
clientlauncher.log	4/26/2019 3:49 PM	LOG File	1 KB
designer-launcher.json	4/26/2019 11:11 AM	JSON File	3 KB
designerlauncher.log	4/26/2019 11:11 AM	LOG File	86 KB
launchclient.jar	4/24/2019 10:17 AM	Executable Jar File	3,565 KB
launchclient.jar.chk	4/24/2019 10:17 AM	Recovered File Fra...	1 KB
unins000.dat	4/26/2019 3:49 PM	DAT File	20 KB
unins000.exe	4/26/2019 3:48 PM	Application	820 KB
visionclientlauncher.exe	4/22/2019 2:36 AM	Application	21,043 KB
vision-client-launcher.json	4/26/2019 3:53 PM	JSON File	4 KB
visionclientlauncher.log	4/26/2019 2:30 PM	LOG File	35 KB
VisionIcon.ico	4/25/2019 2:54 PM	Icon	306 KB

3. Navigate back to the `.ignition` directory, which contains the `clientlauncher-data` folder.

s > .ignition		Search
Name	Date modified	
cache	4/23/2019 2:41	
clientlauncher-data	4/26/2019 4:21	
.designer.prefs.bak	4/26/2019 2:21	
clientlauncher.log	4/26/2019 3:30	
designer.prefs	4/26/2019 2:21	

4. In the `.ignition` directory, create a new folder named `.ignition`.

sers > .ignition	
Name	
.ignition	
cache	
clientlauncher-data	
.designer.prefs.bak	

! INFO

This temporary folder structure ensures that the launcher extracts to the correct hidden directory when deployed on another system. Some operating systems require you to rename the folder using a trailing period (`.ignition.`) to create a leading dot.

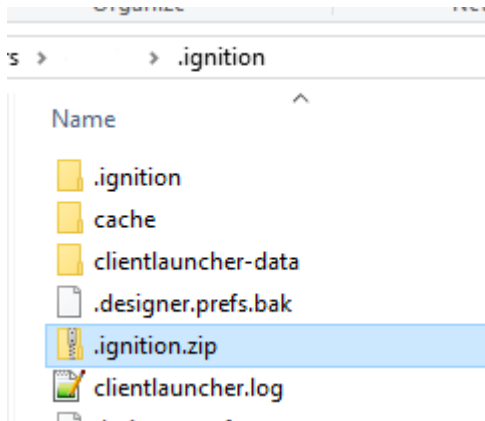
5. Copy the `clientlauncher-data` folder into the newly created `.ignition` folder.



TIP

Copy the folder rather than moving it to avoid disrupting the existing launcher configuration on the source system.

6. Compress the new `.ignition` folder into a ZIP file.



You now have a ZIP file that can be deployed to another system.

Deploy the Launcher

1. Copy the ZIP file to the target system.
2. Extract the ZIP file into the user's home directory.
 - On Windows systems, this is located at `C:\Users\userName`.
 - On Linux systems, this is located at `/home/user`.
3. Navigate to the launcher executable located under `.ignition/clientlauncher-data`.
4. Run the launcher.
5. (Optional) Create a shortcut to the launcher.

Redundant Gateways

The Vision Client Launcher supports redundant Gateway configurations. When the launcher connects to a master Gateway, the backup Gateway address is stored in the launcher configuration file.

If the master Gateway is unavailable when the launcher starts, the launcher attempts to connect to the backup Gateway. If neither Gateway is reachable, the launcher alternates between them until a connection is established or the launcher is closed.

SSL Support

When SSL is enabled on a Gateway, the Vision Client Launcher can use the associated security features.

Certificates Signed by a Certificate Authority

If the Gateway uses an SSL certificate signed by a recognized Certificate Authority (CA), no additional launcher configuration is required.

Self-Signed Certificates

If the Gateway uses a self-signed SSL certificate, the certificate must be available locally to the launcher in the `.ignition/clientlauncher-data/certificates` directory under the user's home folder.

When a certificate is placed in this directory, the launcher automatically attempts to add it to the local keystore when launching an application.

Troubleshooting

If the Vision Client Launcher fails to start an application, review the launcher log files in the `.ignition/clientlauncher-data` directory under the user's home folder. Each launcher writes to a corresponding log file.

- **Designer Launcher** writes to `designerlauncher.log`
- **Perspective Workstation** writes to `workstation.log`
- **Vision Client Launcher** writes to `visionclientlauncher.log`

Locking the Launcher Configuration

You can lock a launcher configuration to prevent users from making changes. For more information, see the [Launcher Settings](#) page.