Network Architectures

Typical Deployment scenarios

This section describes some FactoryStudio deployment scenarios. Large applications can use a combination of those scenarios, or interconnect remote sites, or use the EdgeHMI or IIoT Gateway products to publish data to the main server.

FactoryStudio modules such as Scripts, Device, Historian or Database can be placed on different computers, in a distributed system context. The same concept applies for the many options of client visualization tools, which can run locally at the server computer or remotely.

Therefore there are many possible deployment configurations. The basic ones are described here.

- Standalone System
- Distributed Data Acquisition System
- Client and Server System
- Redundant Server
- Control System
- Distributed and Redundant Control System
- Data Connection with remote sites

Multiple Layer Applications

FactoryStudio was architected to enable its use in different scenarios and topologies, from a local interface on an embedded panel to fault-tolerant servers, serving multiple projects and clients. The development tools and project components are scalable, reusable and consistent.

Operational Stability

The 100% managed code implementation provides unmatched operational stability, thanks to an intrinsically safe software architecture, including execution threads isolation, exception control, failure recovery, modular implementation, hardware abstractions and operating system independence.

Highly flexible, scalable and simple to use

Access data remote machine data, from anywhere, anytime.

From IT to Factory-Floor

Tatsoft provides a flexible and simple licensing model, allowing solutions that size your project to provide the best possible return of investment on each application scenario. The product families and models enable you to deploy high quality and cost-effective systems, ranging from local HMI, touch- panels, embedded systems, supervisory stations, SCADA and distributed systems, control room and operations centers.

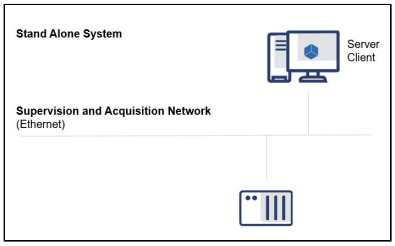
Redundancy and High Availability

For high availability systems, the real-time database, Alarm and Historian servers, data- acquisition, all FactoryStudio components can be deployed as a redundant hot-standby system, with no project changes required.

The hot-standby redundancy is field-proven with hundreds of devices in the network and multiple clients.

Stand Alone System

In this system, the server side components (Data acquisition, Alarms, data logging) and the client side components (displays, client-side scripts) are running on the same computer.

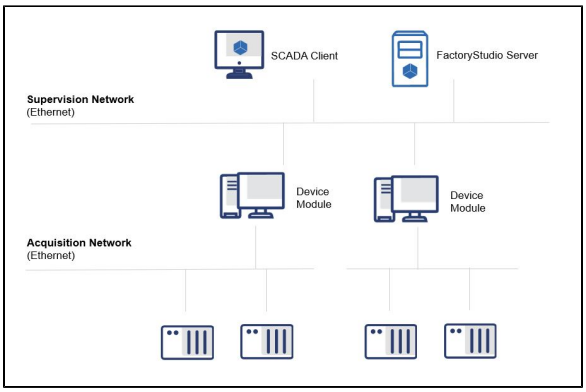


The computer can be windows desktops, Panel PC, industrial PCs, Linux devices, embedded systems. The stand-alone systems can also act as data publisher to remote FactoryStudio servers acting as Edge data collectors.

Distributed Data acquisition System

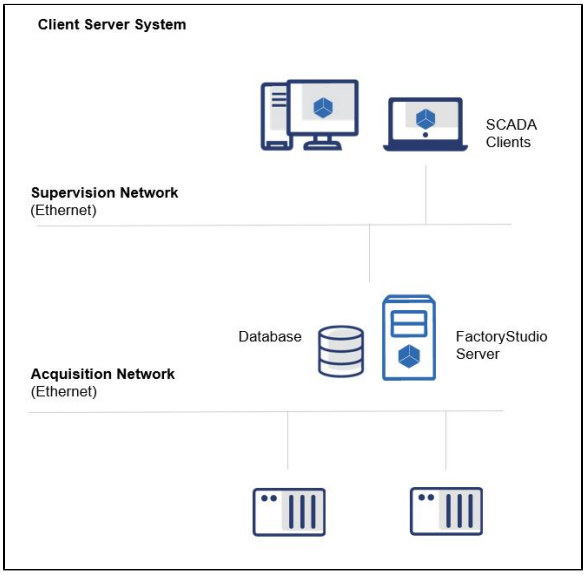
This system is characterized by a server machine and device modules running on computers dedicated to communication with the process. In this case the SCADA client can be placed in the same server computer or in remote ones.

This model is also useful in plants that have devices with serial port or limited communication capability. By placing I/O servers in the factory to interact with these devices, it is possible to optimize the communication on slow or low bandwidth networks and achieve a better global performance.

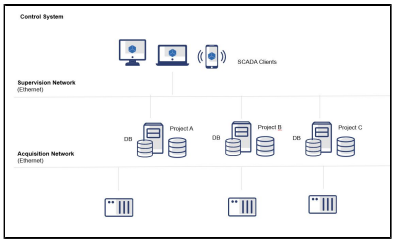


Client and Server System

In this system a FactoryStudio server runs the server side modules (alarm, historian, data acquisition) and operator client stations are executed in other networks computers, or in remote computers connect by a WAN or Cloud interface.



Control System



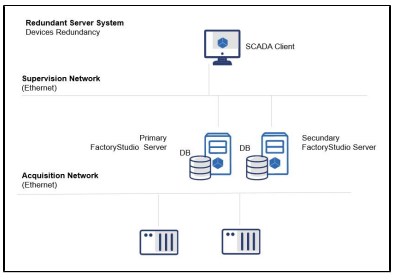
In the Control System it is possible to have multiple servers in different plants (different projects) in a distributed architecture. This configuration allows access in a control room to any of these plants through specific clients. It is important to mention that the clients of the plants will not be integrated in one machine, so it is necessary to specify which plant users want to watch.

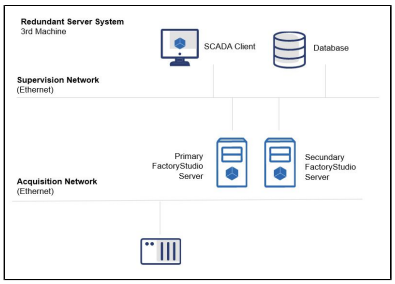
In this scenario, the system is organized in discrete locations controlled by local operators supported by local redundant servers. At the same time, a management level in a central control room can be configured to monitor all sites simultaneously. Each site is represented in the project as a separate cluster, grouping their primary and standby servers.

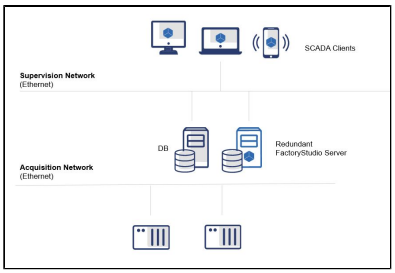
Redundant Server System

The Redundant Server System presents two different computers running FactoryStudio Servers, where the redundancy is done automatically by the supervisory system itself. Thus it is only necessary to specify the IP addresses of the primary and secondary stations. There are a few typical deployment scenarios for redundant servers:

- The Alarm and/or Historian database running on a third machine dedicated to historical data
- The databases in the primary and secondary servers are used to store the historical data of Alarm and/or Historian modules, with automatic data synchronization between them
- The device module (PLC communication) is also made redundant







Distributed and Redundant Control System

This system includes a Server machine and Alarm modules, Historian, Database and SCADA Clients in other computers of the network.