# X. Netbus Pro System
# System Highlights

## Ver 1.3

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# 1. Preface

Netbus Pro System is an effective **"Cloud Software Platform"** which contains several data integration services such as **data acquisition, collection, management, storage, presentation** which supports several communication media as **modern data exchange protocols** as well as **conventional automation protocols** to be able to to provide **"modern, flexible, scalable and effective"** solution.

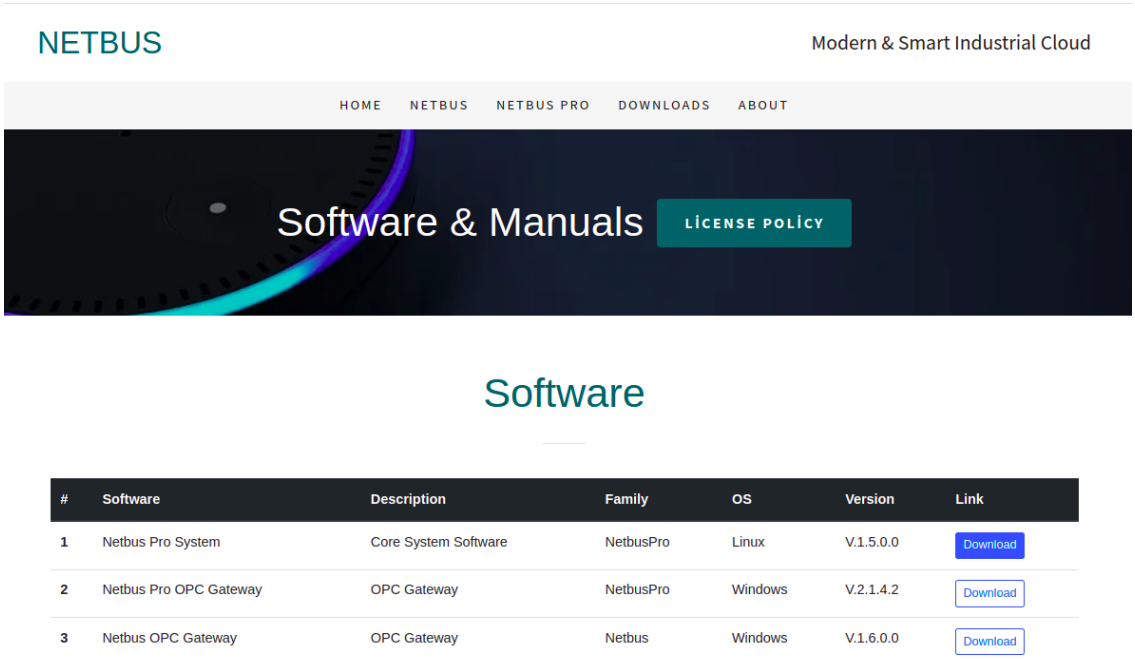
Netbus Pro Cloud System provides a **platform independent industrial cloud solution** that works on several modern operating systems running on either standard or embedded hardware. It supports **distributed execution of cloud services** on wide network infrastructure. It is perfectly possible to plan and organize the system architecture according to the budget and specification of the project and the customer requirements.

Netbus Pro System has flexible system requirements. It is based on **Open-Source** Software platform principles, it is an **Open-System** which is designed to support well-known software standards and perfectly ready to integrate and exchange data with these applications using modern protocols. Thanks to the flexible system requirements, it is perfectly possible to run Netbus Pro Core applications on a small ARM system as well as full-fledged server platforms.

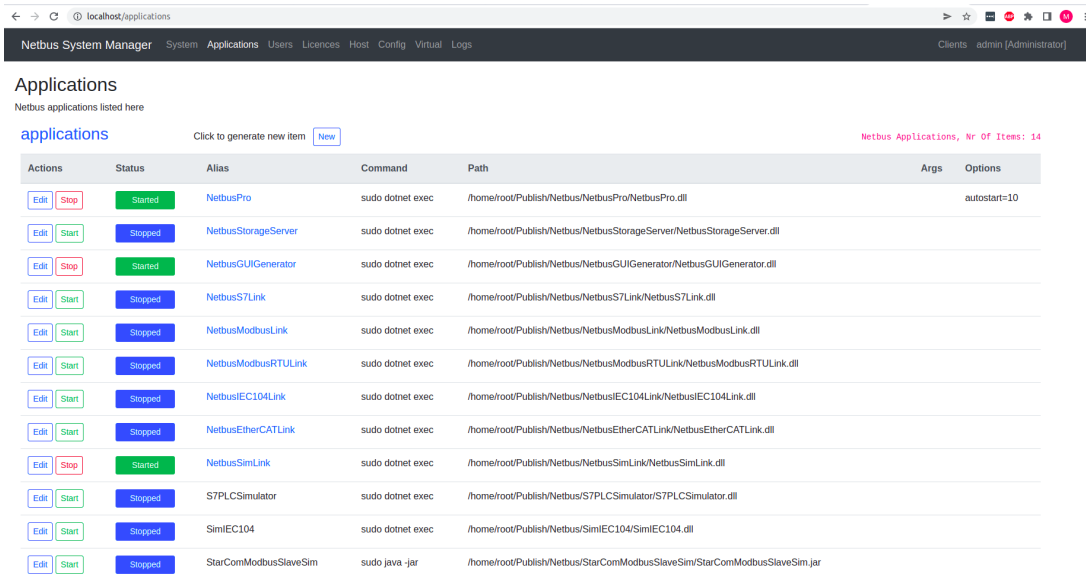
Netbus Pro System provides an **on-the-edge** well designed **"super fast"** data exchange platform. The **"Distribution Philosophy of The Netbus Services"** and the optional selection of **"Dedicated Hardware for Netbus Pro Core Service"** makes the system and the Netbus Pro Core application super fast and perfectly optimized. Well-organized WebAPI interface provides fastest and effective queries and exporting / importing data chunks in JSON data format for the use of Netbus Pro Services as well as custom services and third party applications.

Netbus Pro System has a **powerful distribution philosophy** with great load balancing and system improvement opportunities. The distribution philosophy of the services and selection of **"Dedicated Hardware for Specific Services"** makes the Netbus Pro System super fast and perfectly optimized. Netbus Pro System runs on arm processors, desktop computers and server platforms as well. It supports **Redundant Operations** in several levels and components of System Architecture.

Netbus Pro System setup utility **can be downloaded from the [netbus.io](netbus.io) web site** directly. The Setup Utility provides user friendly and straight-forward setup experience.




After the setup, you can access and manage Netbus Pro Systems from anywhere. It is perfectly possible to explore netbus devices through the network. Authorized users may configure, manage and diagnose these devices with web interfaces of the related services easily.



# 2. Netbus Pro System Overview

Netbus Pro System is a “Cloud Software Platform” which contains several services as “data acquisition, collection, management, storage, presentation” which supports “modern data exchange protocols” as well as “conventional automation protocols” to be able to provide “modern, flexible, scalable and effective” solutions.

### Netbus Pro System Block Diagram

The block diagram of Netbus Pro System is given below representing several services and integration capabilities of the system.

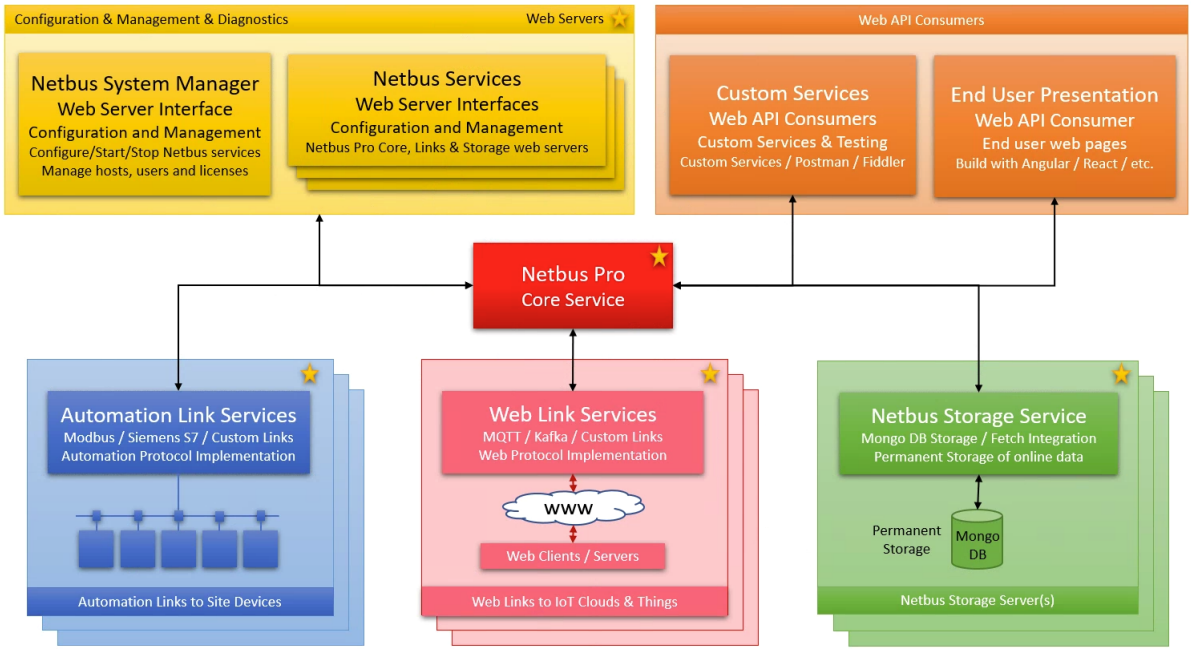



*Figure 1: Block diagram of Netbus Pro System*

### Netbus Application = BackEnd service + Web site

### Netbus Pro System consists set of services to achieve data management

Netbus Pro Core Service : Core application, data management & presentation
Netbus Storage Service : Storage application, data storage and fetch servers
Automation Link Services : Links to Automation Devices
Web Link Services : Links to Web Systems
Configuration & Management & Diagnostics : Web server interfaces
Web API Consumers : Custom Services and End User Presentation services

# 3. Flexible System Requirements

The flexibility of The System Architecture is the key point for configuring and building a powerful platform and executing the services in the most effective and optimized way.

Netbus Pro System provides huge flexibilities on operating system, hardware system requirements as well as network topology and system architecture.

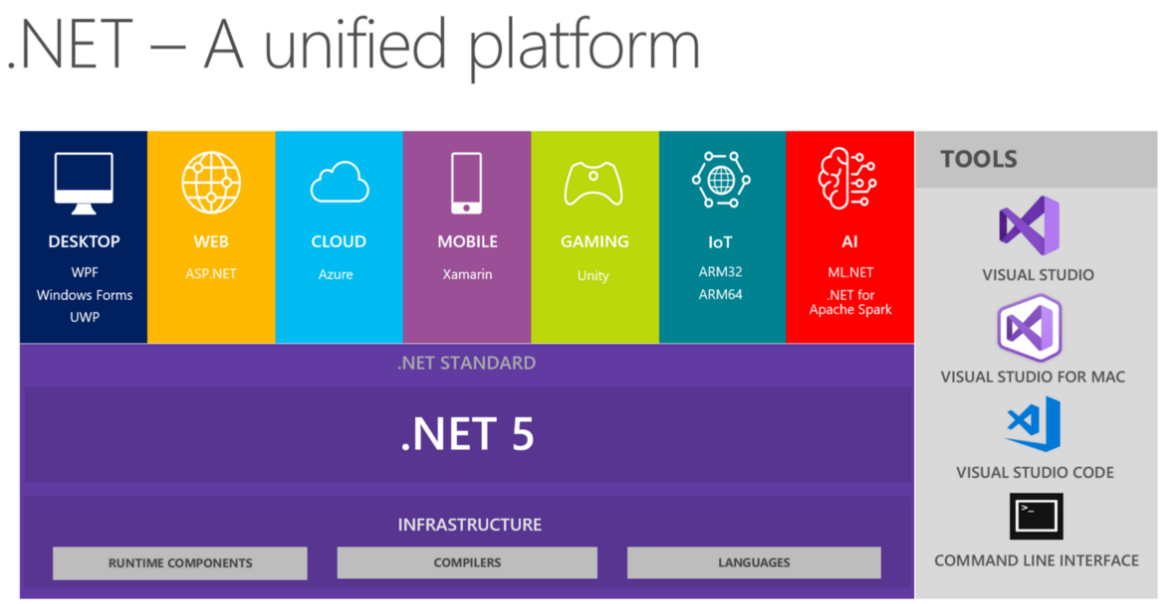
## 3.1. Based on Open-Source Software Platform

Netbus Pro System applications are based on the .NET Core platform which is an open-source, general-purpose development platform.

To receive detailed information about Net Core software platform, please visit https://docs.microsoft.com/en-us/dotnet/core/about

.NET Core is an open-source, general-purpose development platform. It is perfectly possible to create .NET Core apps for Windows, macOS, and Linux for x64, x86, ARM32, and ARM64 processors. Frameworks and APIs are provided for cloud, IoT, client UI, and machine learning.

The MIT license can be found at https://github.com/dotnet/runtime/blob/master/LICENSE.TXT



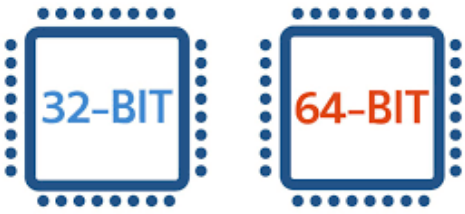
## 3.2. Operating System Flexibility

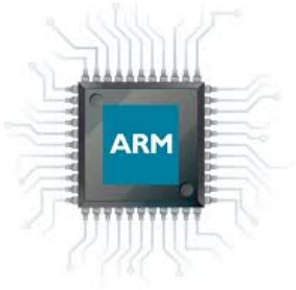
Netbus Pro System can run perfectly on most of the modern operating systems such as Windows, macOS, and Linux. In details it is supported on the following operating systems:

- Alpine: 3.9+
- Debian: 9+
- openSUSE: 42.3+
- Fedora: 26+
- Ubuntu: 16.04+
- RHEL: 6+
- SLES: 12+
- macOS: 10.13+
- Windows Client: 7, 8.1, 10 (1607+)
- Windows Server: 2012 R2 SP1+

For details of Microsoft .Net Core support policy please visit the following web site:
https://github.com/dotnet/core/blob/master/release-notes/3.0/3.0-supported-os.md

## 3.3. Hardware Platform Flexibility



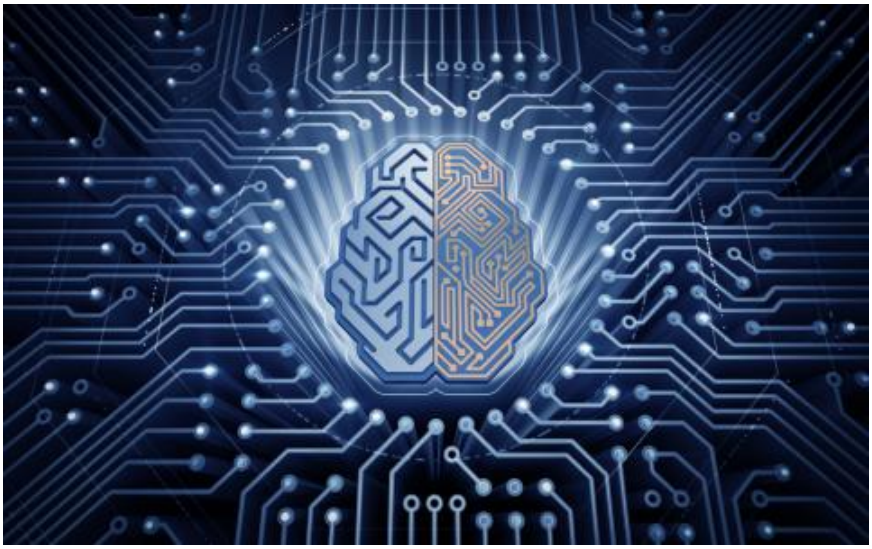




Netbus Pro System can run perfectly on most of the modern hardware platforms.
In details it can run on following processors:

- x64
- x86
- ARM32
- ARM64

# 4. Super Fast Core Service

Netbus Pro System provides an on-the-edge well designed “super fast” data exchange platform.



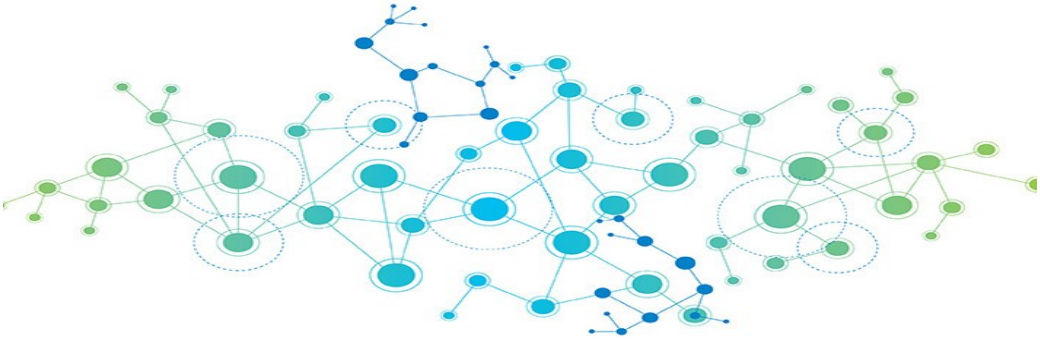
The details of the characteristics of the system and optimization philosophy are given below:

- The core system is simple and dedicated to data management tasks
- The data is accepted and shared through the In-memory platform of the core service
- Permanent storage of the selected data is executed independently from the core service
- System is highly scalable and performance of the system is perfectly upgradable
- System has a powerful distributed operation philosophy with great load balancing and performance improvement opportunities

The detailed explanation of these principles will be explained in the following sections.

## 4.1. Simple and Powerful : Independent Core Service

“The Netbus Pro Core Application” is a simple and powerful service with a simple web interface. The service is totally dedicated for data-exchange tasks such as accepting and sharing data.



The **“Distribution Philosophy of The Netbus Services”** and the optional selection of **“Dedicated Hardware for Netbus Pro Core Service”** makes the system and the Netbus Pro Core application super fast and perfectly optimized.

The Netbus Pro Core service provides only dedicated, independent core services and the Netbus Pro System supports distribution of services. It is perfectly possible to separate the core service from other services and devices and locate it in a protected server room. In this case, the Netbus Pro Core application runs in relatively protected and supervised conditions. Redundant operation of core service might be configured as well as separated permanent storage options and link services located at site might be integrated to this server platform.

## 4.2. Fastest : In-Memory Data Server with WebAPI

Netbus Pro Core service provides totally In-Memory data accepting and sharing opportunities. The data is accepted and shared totally through the fast and optimized memory of the core. Permanent storage of the selected data is implemented independently from the core application.

Data exchange is performed principally through RESTful WebAPI interface which is on-the-edge modern and fastest data exchange standard of IoT systems and Industry 4.0 platforms.

Highly optimized and well-organized WebAPI interface provides fastest and effective queries and exporting / importing data chunks in JSON data format for the use of Netbus Pro Services as well as custom services and third party applications.

## 4.3. Scalable System

Thanks to the flexible system requirements, it is perfectly possible to run Netbus Pro Core applications on a small ARM system as well as full-fledged server platforms.

It is perfectly possible to plan and organize **"The System Architecture"** according to the budget and specification of the project and the customer requirements.

Besides, after the installation and commissioning of the system, the extension of the system and the popped-up extra requirements in a particular time may necessitate upgrades in the system. In Netbus Pro Software platform, it is perfectly possible to perform improvements as **"on-the-fly and partial upgrades in the specific service & hardware only"** according to these newly developed requirements.

## 4.4. Separated and Distributed Services

Netbus Pro System has a powerful distribution philosophy with great load balancing and system improvement opportunities. The distribution philosophy of the services and selection of **"Dedicated Hardware for Specific Services"** makes the Netbus Pro System super fast and perfectly optimized. The "Distributed Operation" capability provides great opportunities given as:

- Flexible system architecture
- Flexible hardware requirements
- Load Balancing Opportunities
- Performance Improvements
- On the fly and partial upgrades
- Easy integration with custom and third party services
- Web based and management of separated and distributed services

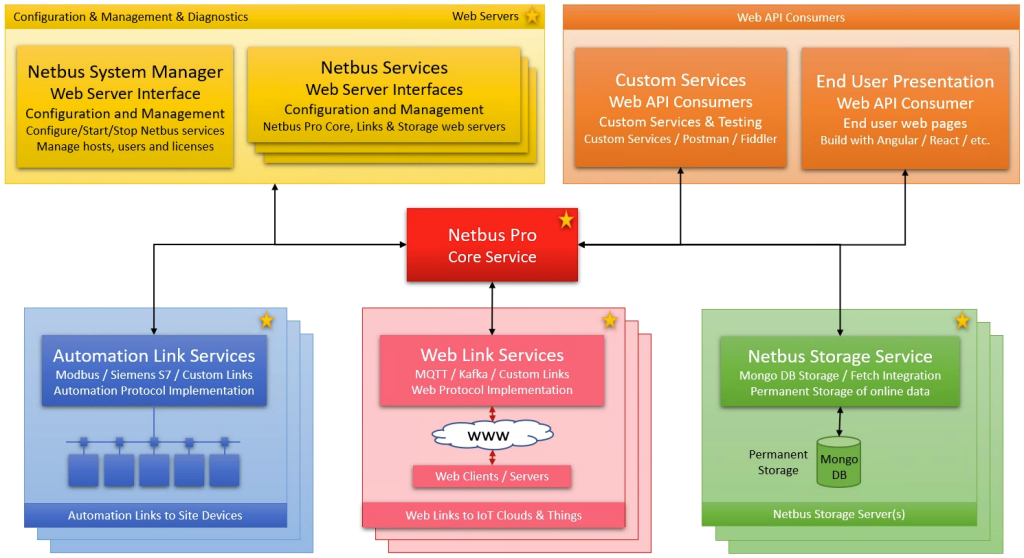
## 4.5. Storage Server(s) with mongo power

mongoDB.

Netbus Pro System performs the permanent storage task of the selected data independently from the core service with a modern, super fast, efficient and standardized method as mongodb database. Besides, It is perfectly possible to organize and configure multiple storage servers on the system which stores multiple copies of the data in a redundant manner. Netbus Pro Core system's data is restored by these services on power up and the data automatically fulfilled on the core promptly.

# 5. Distributed Operation

Netbus Pro System is a collection of services which are dedicated for a specific particular task.




The Netbus Pro System distribution philosophy which is given in a nutshell is as follows : "**You may distribute and run any netbus service anywhere in the world on almost any hardware with a network connection".** This powerful distribution philosophy provides great flexibility and opportunities which will be given in this section.

## 5.1. Distribute Services to Several Devices

While all the Netbus Pro System services and utilities cooperate through the network and via **"The Netbus Pro Core Service"** and its modern and flexible data integration opportunities, all these services can be distributed on different computers on the network. This capability provides great opportunities such as **"Load Balancing"** and **"Performance Improvements"** as well as flexible system configuration and particular service upgrades.

## 5.2. Setup Distributed Storage Server(s)

Netbus Pro System performs the permanent storage task of the selected data independently from the core service with a modern and standardized method as storing data to mongodb database.

It is perfectly possible to organize and configure multiple storage servers on the system which stores multiple copies of the data in a redundant manner. Netbus Pro Core system's data is restored by these services and the data automatically fulfilled on the core.

## 5.3. Collect Data from Anywhere in the World

Thanks to Netbus Pro Links services which are capable of running anywhere in the world with a network connection, you may perform data acquisition with automation protocols locally and transfer extracted data through modern and effective data exchange interfaces of Netbus Pro Core service. Besides, You may manage, diagnose and test your automation devices' data through user friendly and effective web interfaces easily.

## 5.4. Manage System from Any Location

Netbus Pro System consists of a set of powerful applications. A Netbus application consists of a dedicated specific service and its web server which provides user friendly GUI to configure, manage and diagnose the service. So the services GUI is presented through web pages and it is perfectly accessible from anywhere in the world through this web interface.

# 6. Open System

Netbus Pro System is designed to support well-known software standards and perfectly ready to integrate and exchange data with these applications using modern protocols.

## 6.1. Open Set of Services Ready for Integration

Netbus Pro System is a collection of applications (services + web sites) which cooperate and perform the required tasks collectively.

The Netbus Pro Core application is at the core of the system and provides data integration and sharing platform for all the Netbus services.

It is perfectly possible to generate custom services and integrate them easily to the Netbus Pro software platform through standardized interfaces provided by Netbus Pro Core system.

## 6.2. Standard & Modern Data Exchange Interfaces

Netbus Pro System Core application provides standard modern data exchange interfaces as:

- WebAPI
- MQTT
- Kafka

## 6.3. Conventional Automation Protocols

Netbus Pro System provides link services which implement automation protocols to perform data exchange with automation devices. The implemented protocols are listed below:

- Siemens S7 Protocol
- Modbus RTU / TCP
- EtherCAT

Besides, Netbus Pro System provides Energy Automation Protocol Links as given below:

- IEC 61850
- IEC 60870-5-101
- IEC 60870-5-103
- IEC 60870-5-104

All the protocol implementations are presented as independent Link applications (services with web interfaces) for configuration, diagnostics and testing.

## 6.4. OPC Data Exchange Interface

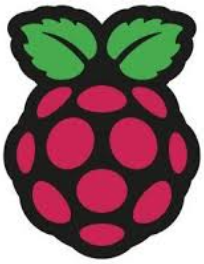
Netbus Pro System provides OPC UA and OPC DA data exchange interfaces for data exchange with higher / lower third party systems.

# 7. Scalable System

Thanks to the flexible system requirements, it is perfectly possible to run Netbus Pro Core applications on small ARM systems as well as full-fledged server platforms. It is perfectly possible to plan and organize **“The System Architecture”** according to the budget and specification of the project.

Besides, after the installation and commissioning of the system, the extension of the system and the popped-up extra requirements in time may require upgrades in the services of the system. In Netbus Pro Software platform, it is perfectly possible to perform upgrades **“on-the-fly”** and **“in the specific service & hardware only”** according to these newly developed requirements.

## 7.1. Light : Netbus Pro System runs on Raspberry PI



Netbus Pro System can run perfectly on ARM based systems in **“Light system architecture”.** For example, an ARM32 / ARM64 release of Netbus Pro Core software can run on a Raspberry PI system. It is perfectly possible to execute a subset of services on a particular Raspberry PI device as well as a full set of Netbus Pro Core software. Obviously, the system configuration, data acquisition map, the performance requirements and the budget of the project might enlight and specify the configuration and design of a particular **“Netbus Pro System Architecture”.**

## 7.2. Medium : Netbus Pro System runs on Desktop PCs

Netbus Pro System can run perfectly on desktop computers. In a Netbus Pro System, the number of computers used in the system architecture as well as hardware specification of these computers and network topology of the system is totally flexible. Wide range of CPU / Memory / Storage System options might be selected as the components of the System Configuration which varies according to the system specification and requirements of the customer.

## 7.3. Pro : Netbus Pro System runs on Server Platforms

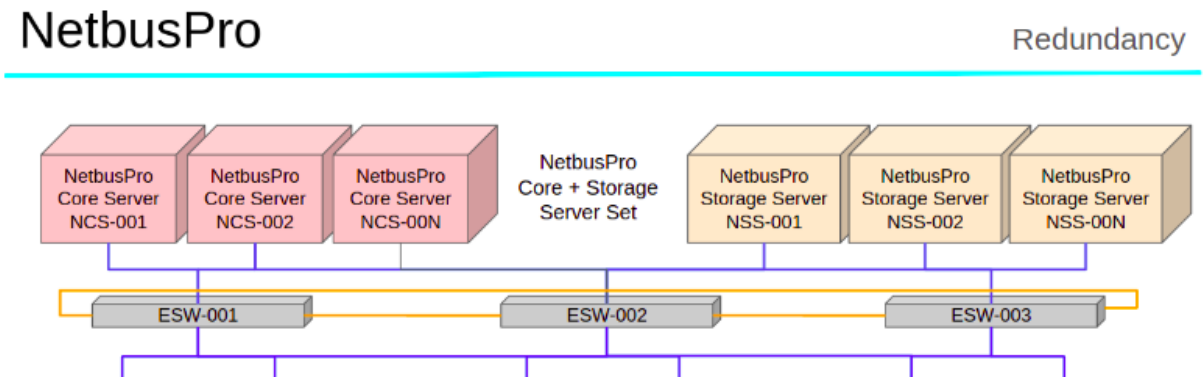
Netbus Pro System can fit perfectly on server computers which are located in a protected server room with limited and authorized access. The number of servers as well as hardware specification of them and network topology of the entire system is totally flexible thanks to Distributed Service Philosophy of Netbus Pro System. Wide range of Server platform options might be selected which varies according to the system specification and requirements of the customer including totally virtualized platforms as well as dockerized systems.

# 8. Redundant System

Netbus Pro System supports Redundant Operations in different levels and components of System Architecture. In this section, the redundancy options will be explained.

## 8.1. Netbus Pro Core Redundancy

Netbus Pro System perfectly supports core redundancy. Netbus Pro Core System might be executed separately on the same computer (with different TCP ports) as well as on different computers perfectly. The Netbus data provider services (for example Link services) supports multiple data transmission capabilities for more than one core service simultaneously. In this case more than one core will be available at a time and providers feed the core services simultaneously. The consumer applications check availability of the core servers and choose to connect the preferred live server to get data. In a fail case the consumer could switch to the standby core server and operate without interruption.

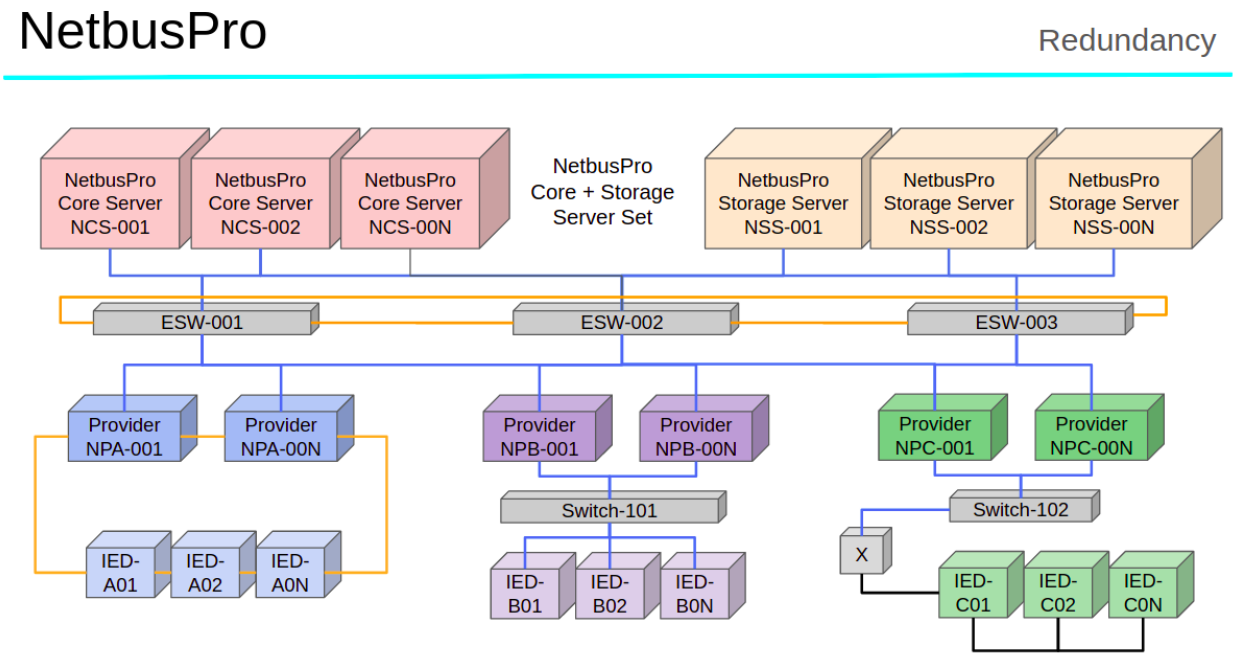


## 8.2. Netbus Pro Storage Server Redundancy

Netbus Pro Storage server stores the online data of Netbus Pro Core service to the persistent mongodb database. It is perfectly possible to run more than one Netbus Pro Storage server simultaneously and direct the data source to any Netbus Pro Core service. So, multiple Netbus Pro Storage servers run side by side and store the data of the Netbus Pro Core service simultaneously. In a fail situation of the core service, any active Netbus Storage server will fulfill the missing data in Netbus Pro Core. If the Netbus Storage server fails, it will receive the data from the Netbus Pro Core service when boot up and store this new data automatically to the persistent media.

## 8.3. Netbus Pro Link Services Redundancy

Netbus Pro System supports Link-Services-Redundancy. While Netbus Pro Core system is a WebAPI core, it listens to the data transfers from providers and processes any data received from the providers. Providers manage active / standby roles in-between to prevent double data storage in the Netbus Pro Core system.



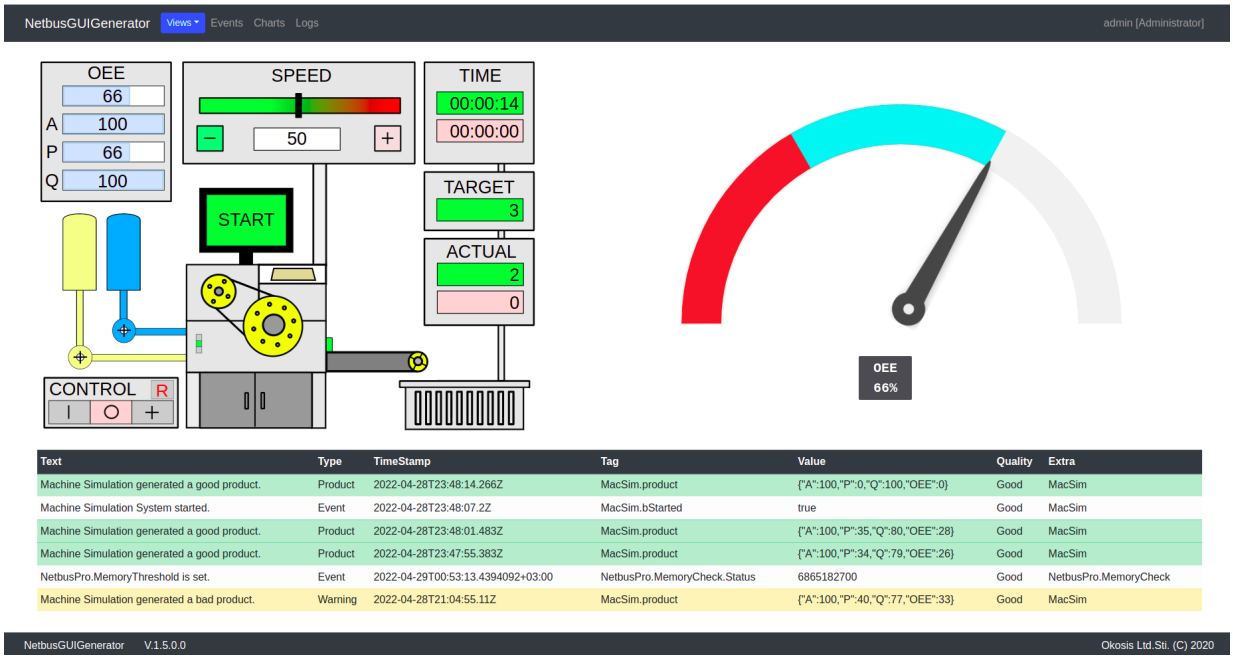

On the other hand Netbus Pro Link services support transfer of retrieved data to Netbus Pro Core server(s) simultaneously. The Up-link definition of the Link service might contain more than one core service simultaneously and it transfers its data to both core servers automatically.

# 9. Multi Platform Graphical User Interfaces (GUIs)

## 9.1. Open & Flexible GUI Presentations

Netbus Pro System provides an open and flexible as well as multi platform and web friendly infrastructure to generate and present powerful Graphical User Interfaces (GUIs).

Netbus Pro System's NetbusGUIGenerator service imports the user generated GUIs and presents them through the web interface besides the Standard GUI pages which provides powerful tools such as Event Viewer and Chart Viewer.



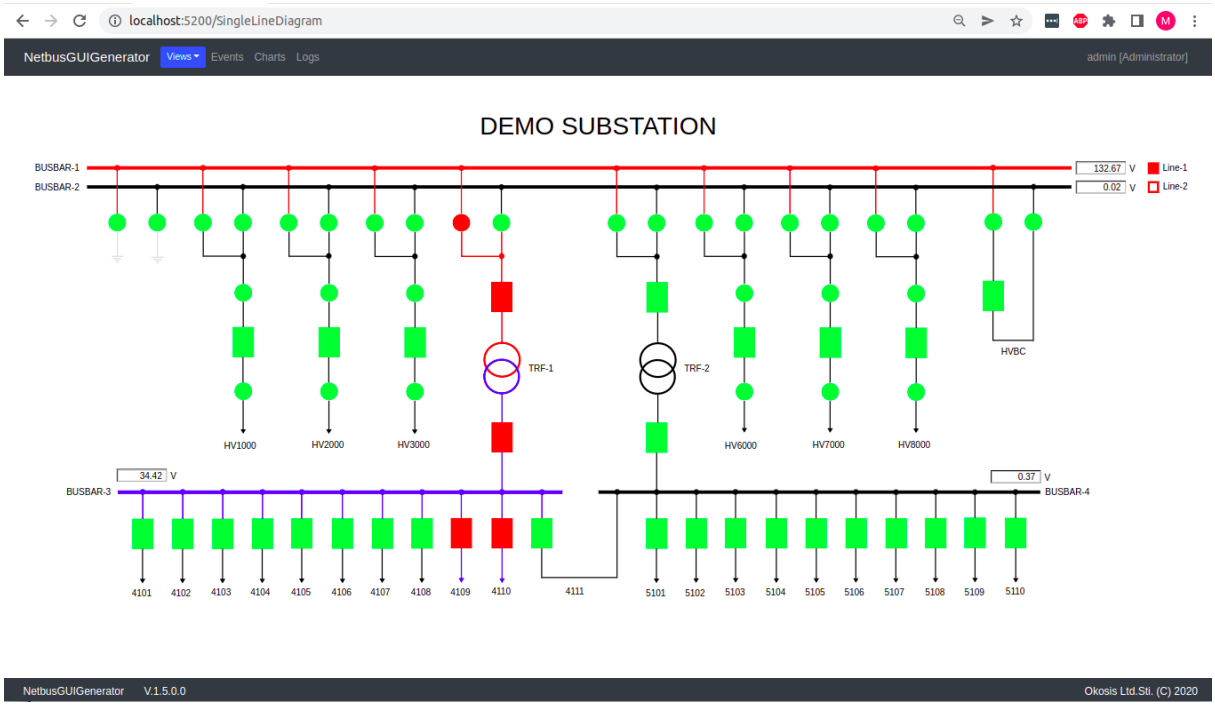

It is perfectly possible to build any GUI page via SVG diagrams and javascript coding interface.

Some example SCADA applications are listed below:

- Energy Automation Systems (e.g. Single Line Diagrams)
- Process Automation Systems
- Factory Automation Systems
- Machine Automation and Reporting Systems
- Overall Equipment Efficiency (OEE) Systems
- Billing and Reporting Systems
- Data Acquisition and Collection Systems

## 9.2. Web Based Presentation with Multi Platform Support

Thanks to modern, standard, effective data exchange interfaces of Netbus Pro Core System. It is easy to integrate the web based flexible user interfaces to Netbus Pro System effectively.




- **Use your computer's web Browser and a Mobile Phone as the Client Screen**

The web pages generated using standard web production tools and "Netbus Javascript Library" can be visualized on any web browser including phone, tablet, desktop etc. So the desktop computer and your handheld device becomes a Client Screen for the Netbus Pro System.

- **Access the presentation from Anywhere**

While the Netbus Pro System GUIs are designed as web pages it is perfectly possible to access these web pages through the internet from anywhere in the World.

- **GUI Design using standard tools**

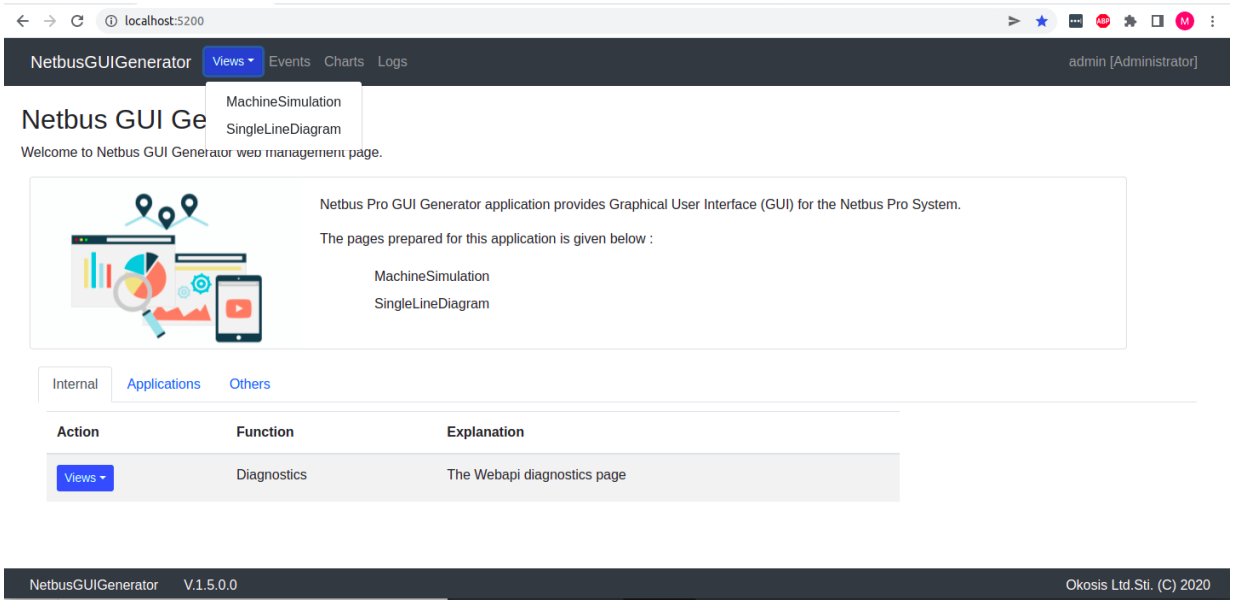
Designing the GUIs with standardized html / web production tools provides highly flexible generation opportunities. You may design your own GUI easily using the "Netbus Interfacing Software Library for javascript" provided by Okosis.

- **GUI Programming with standard javascript**

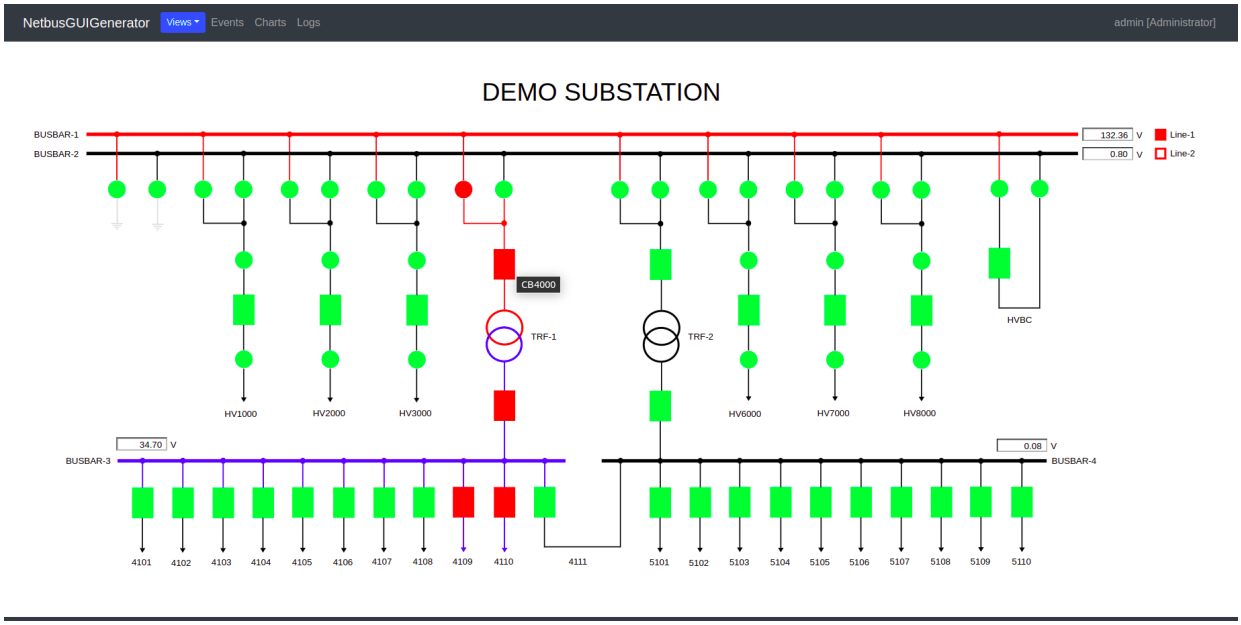
The programming of GUI pages is done using javascript language. Okosis provides a javascript library containing utility functions for interfacing Netbus Core System. You may design your own GUI easily and embed javascript library as well as your own generated functionality cooperated with the effective Netbus Pro Core System.

## 9.3. Netbus GUI Generator Application

Netbus GUI Generator application provides easy integration with custom pages of the users and generates web pages and web links automatically. Users may design custom GUIs and transfer related files to the Netbus GUI folders. The Netbus GUI Generator software integrates users' GUIs using the NetbusGUIGenerator application and javascript libraries provided by Okosis.



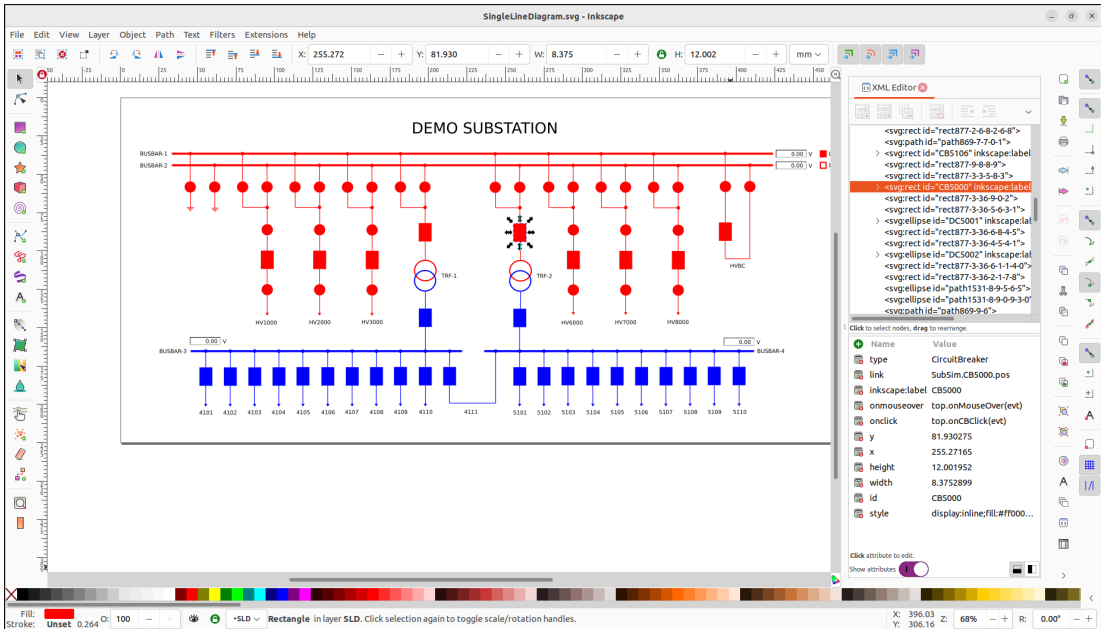

Users generate custom views given in SVG presentation format with provided javascript libraries and javascript programming interface which result in totally web friendly powerful interfaces.



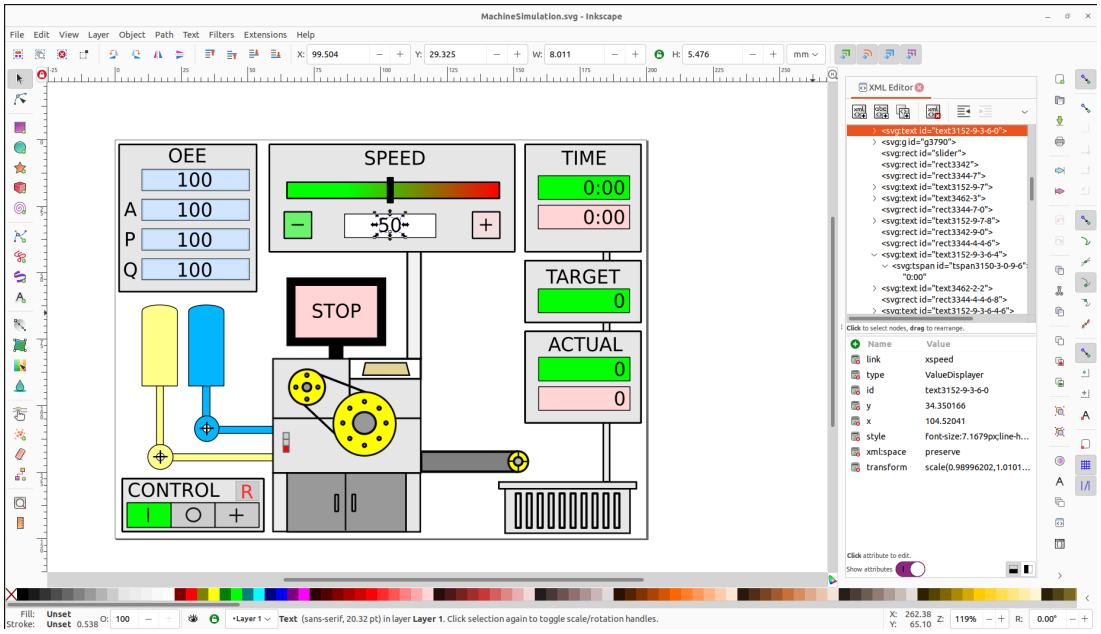
## 9.4. Custom GUI Generation

The users may design their custom GUIs using any software platform that has the capability to access WebAPI RESTful interface which is supported by modern software platforms perfectly.

Here is the Inkscape  software used to generate SVG files to be shown in the custom GUIs.




The SVG files are embedded in html pages and animated via javascript libraries which is supplied by Netbus Pro System infrastructure that provides easy access to Netbus Pro data.

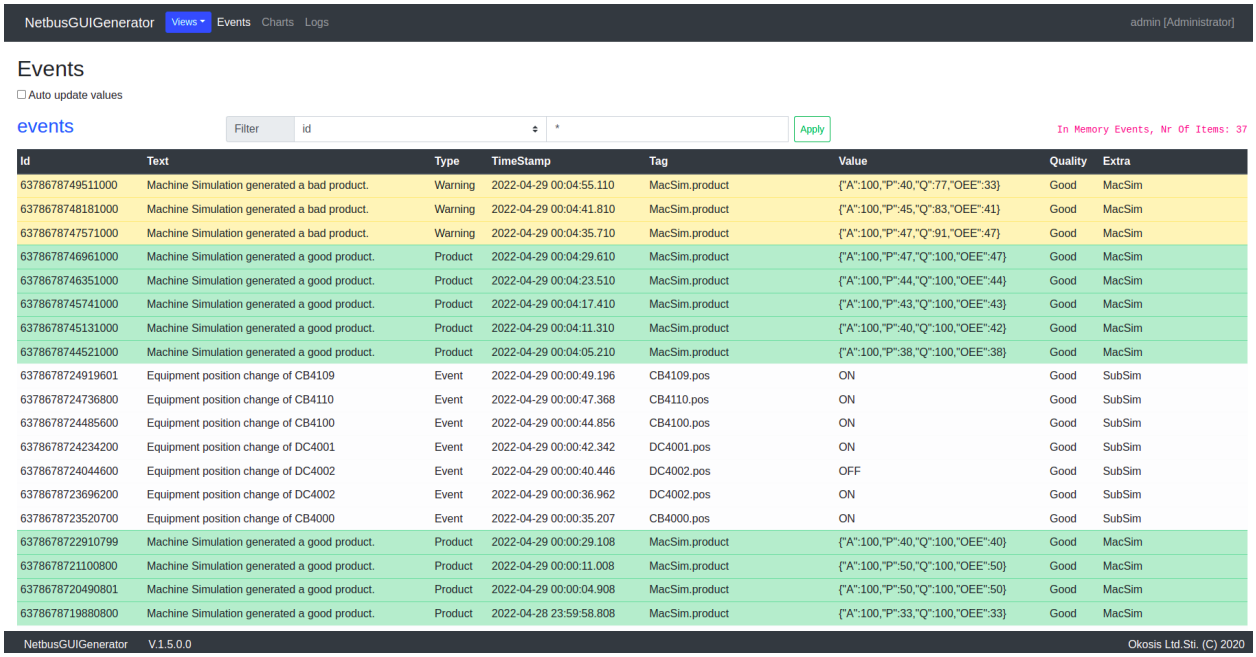


# 9.5. Standard GUI Interfaces

Netbus Pro System provides standard SCADA utility pages to provide a powerful web SCADA interface by default. The sample standard user interfaces will be given here.

## • Events Interface

The Event Viewer page is prepared by default and ready to use.

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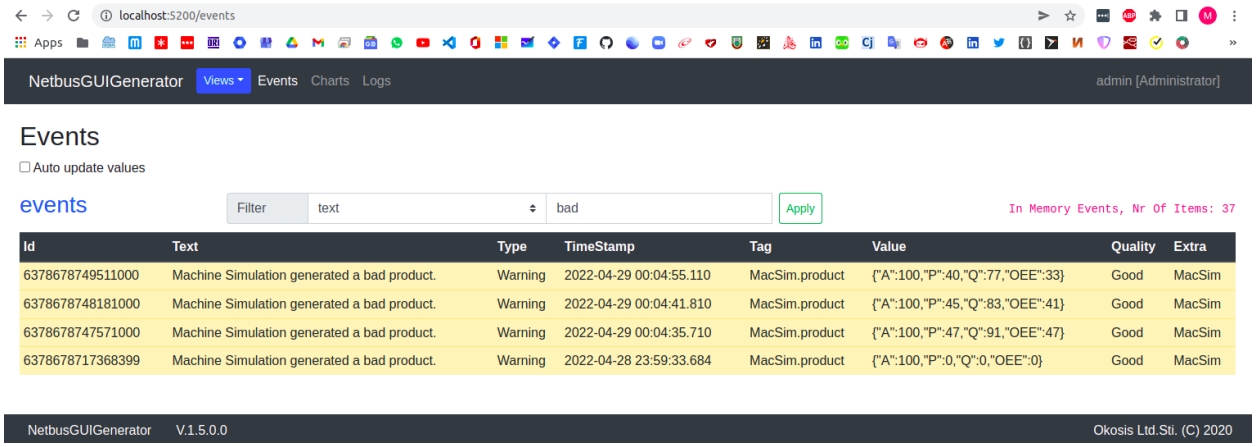
| 6378678747571000 | Machine Simulation generated a bad product. | Warning | 2022-04-29 00:04:35.710 | MacSim.product | {"A":100,"P":47,"Q":91,"OEE":47} | Good | MacSim |
| 6378678746961000 | Machine Simulation generated a good product. | Product | 2022-04-29 00:04:29.610 | MacSim.product | {"A":100,"P":47,"Q":100,"OEE":47} | Good | MacSim |
| 6378678746351000 | Machine Simulation generated a good product. | Product | 2022-04-29 00:04:23.510 | MacSim.product | {"A":100,"P":44,"Q":100,"OEE":44} | Good | MacSim |
| 6378678745741000 | Machine Simulation generated a good product. | Product | 2022-04-29 00:04:17.410 | MacSim.product | {"A":100,"P":43,"Q":100,"OEE":43} | Good | MacSim |
| 6378678745131000 | Machine Simulation generated a good product. | Product | 2022-04-29 00:04:11.310 | MacSim.product | {"A":100,"P":40,"Q":100,"OEE":42} | Good | MacSim |
| 6378678744521000 | Machine Simulation generated a good product. | Product | 2022-04-29 00:04:05.210 | MacSim.product | {"A":100,"P":38,"Q":100,"OEE":38} | Good | MacSim |
| 6378678724919601 | Equipment position change of CB4109 | Event | 2022-04-29 00:00:49.196 | CB4109.pos | ON | Good | SubSim |
| 6378678724736800 | Equipment position change of CB4110 | Event | 2022-04-29 00:00:47.368 | CB4110.pos | ON | Good | SubSim |
| 6378678724485600 | Equipment position change of CB4100 | Event | 2022-04-29 00:00:44.856 | CB4100.pos | ON | Good | SubSim |
| 6378678724234200 | Equipment position change of DC4001 | Event | 2022-04-29 00:00:42.342 | DC4001.pos | ON | Good | SubSim |
| 6378678724044600 | Equipment position change of DC4002 | Event | 2022-04-29 00:00:40.446 | DC4002.pos | OFF | Good | SubSim |
| 6378678723696200 | Equipment position change of DC4002 | Event | 2022-04-29 00:00:36.962 | DC4002.pos | ON | Good | SubSim |
| 6378678723520700 | Equipment position change of CB4000 | Event | 2022-04-29 00:00:35.207 | CB4000.pos | ON | Good | SubSim |
| 6378678722910799 | Machine Simulation generated a good product. | Product | 2022-04-29 00:00:29.108 | MacSim.product | {"A":100,"P":40,"Q":100,"OEE":40} | Good | MacSim |
| 6378678721100800 | Machine Simulation generated a good product. | Product | 2022-04-29 00:00:11.008 | MacSim.product | {"A":100,"P":50,"Q":100,"OEE":50} | Good | MacSim |
| 6378678720490801 | Machine Simulation generated a good product. | Product | 2022-04-29 00:00:04.908 | MacSim.product | {"A":100,"P":50,"Q":100,"OEE":50} | Good | MacSim |
| 6378678719880800 | Machine Simulation generated a good product. | Product | 2022-04-28 23:59:58.808 | MacSim.product | {"A":100,"P":33,"Q":100,"OEE":33} | Good | MacSim |

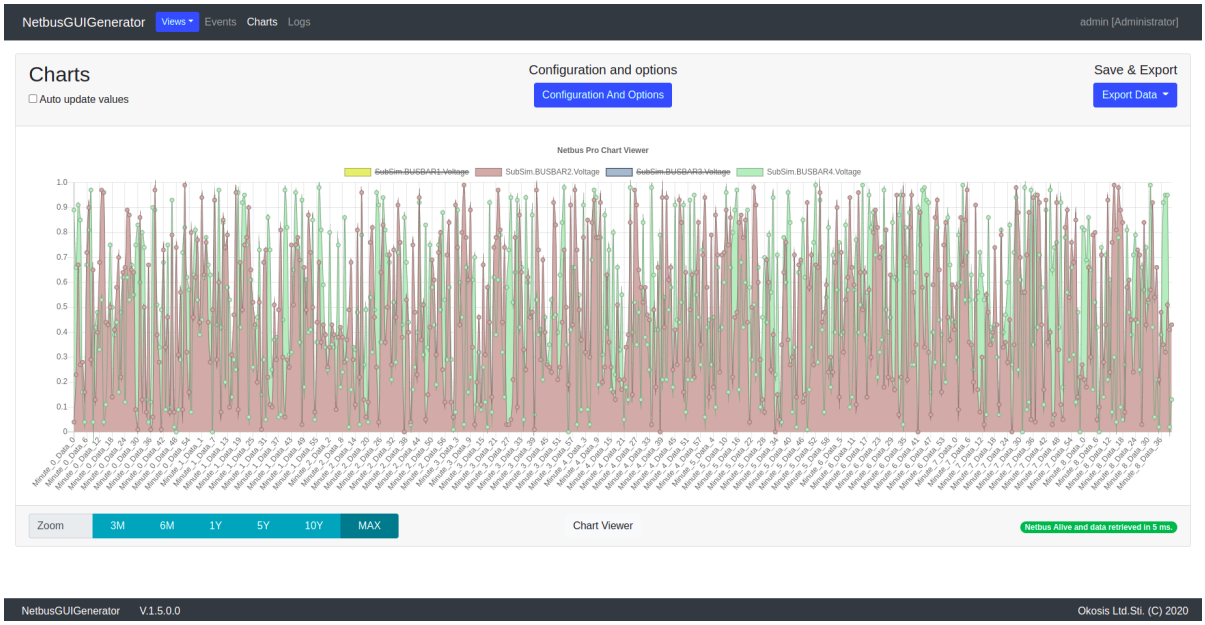
Filtering of Events by several fields are provided as well in the Events page.



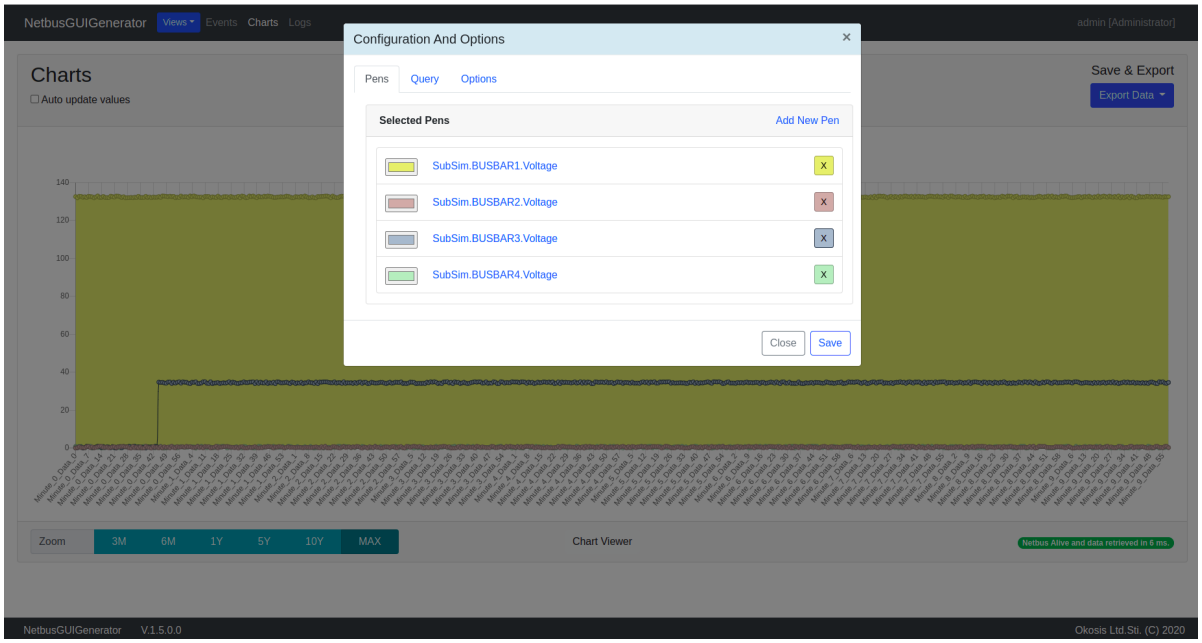

| Id | Text | Type | TimeStamp | Tag | Value | Quality | Extra |
|---|---|---|---|---|---|---|---|
| 6378678749511000 | Machine Simulation generated a bad product. | Warning | 2022-04-29 00:04:55.110 | MacSim.product | {"A":100,"P":40,"Q":77,"OEE":33} | Good | MacSim |
| 6378678748181000 | Machine Simulation generated a bad product. | Warning | 2022-04-29 00:04:41.810 | MacSim.product | {"A":100,"P":45,"Q":83,"OEE":41} | Good | MacSim |
| 6378678747571000 | Machine Simulation generated a bad product. | Warning | 2022-04-29 00:04:35.710 | MacSim.product | {"A":100,"P":47,"Q":91,"OEE":47} | Good | MacSim |
| 6378678717368399 | Machine Simulation generated a bad product. | Warning | 2022-04-28 23:59:33.684 | MacSim.product | {"A":100,"P":0,"Q":0,"OEE":0} | Good | MacSim |

- ## Charts Interface

The Charts Viewer page is prepared by default and ready to use.

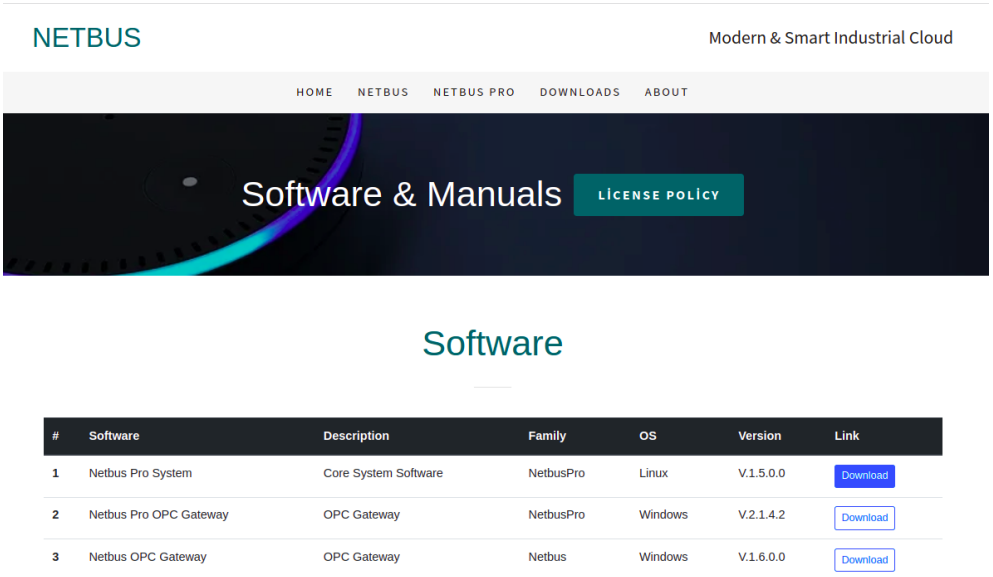



Users can select tags and colors as well as time period from user-friendly interfaces.

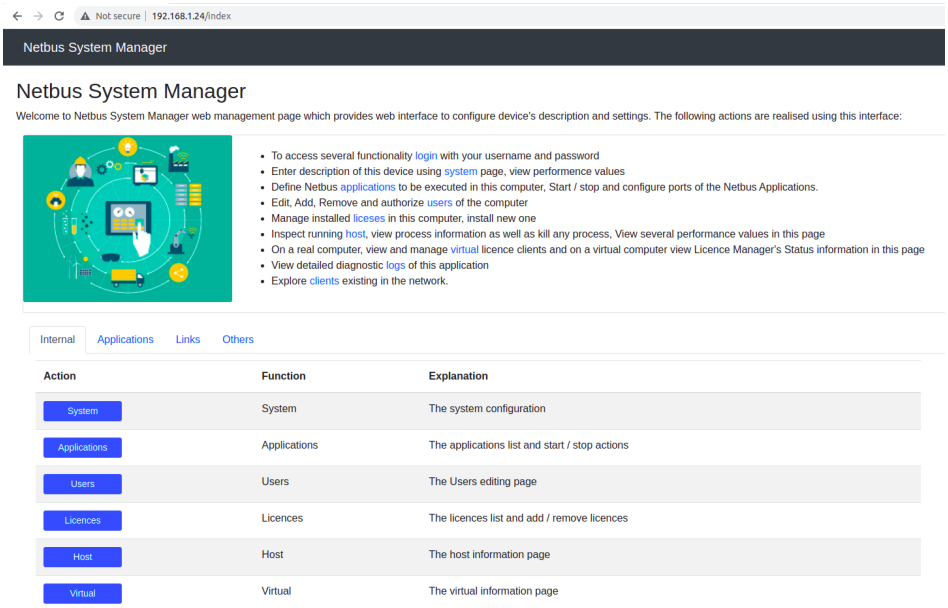


# 10. Web Based Setup & Management

Netbus Pro System can be downloaded from the https://www.netbus.io web site and can be set up easily in a couple of minutes.




It is perfectly possible to explore netbus devices on the network (or with the IP Address of the device) and the users may access to configure, manage and diagnose these devices through the web pages of the related services. In this section the web based setup and management of the netbus devices will be mentioned.

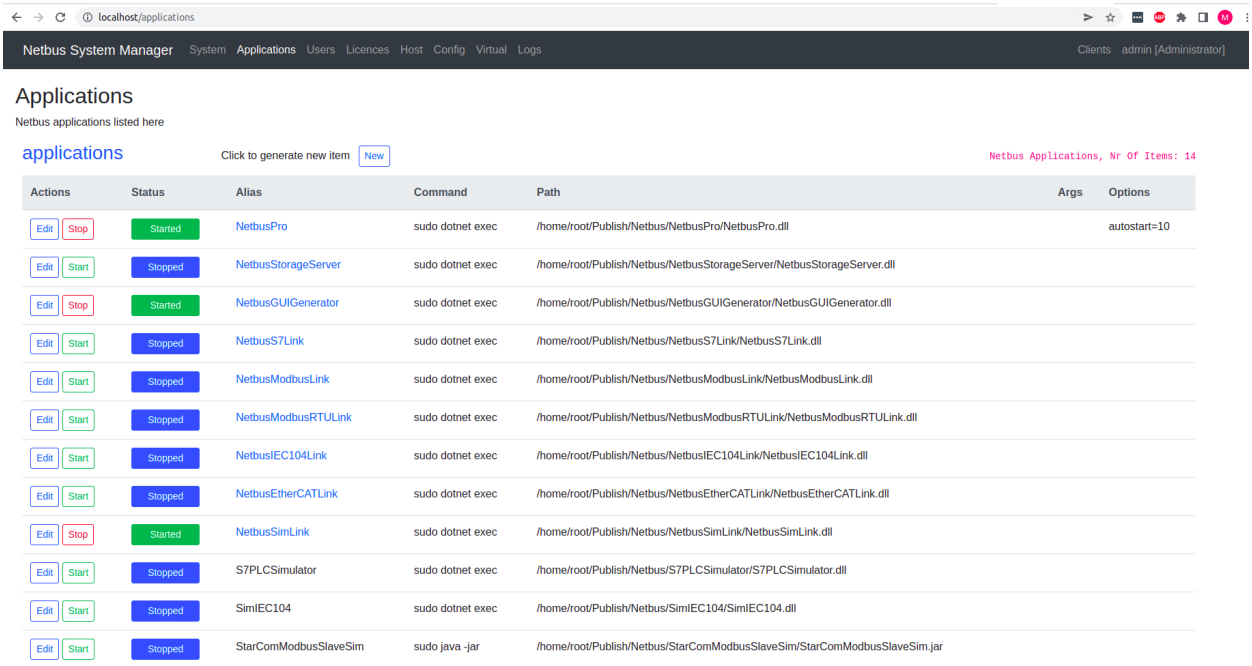


# 10.1. Easy Installation

Netbus Pro System can be downloaded from the web site https://netbus.io/links and can be set up with **Netbus Utility for Setup / Removal / Extraction Tool (NUSRET).**

The User runs “sudo ./install.sh” and the installation of the system is done automatically without any user interference and the Netbus Pro System becomes ready to run in a couple of minutes.

The “License requesting and receiving” actions are performed through Netbus System Manager web site’s licenses page. You may request a license through the web interface and when the license is issued, you may access your license by requesting it from the web site.

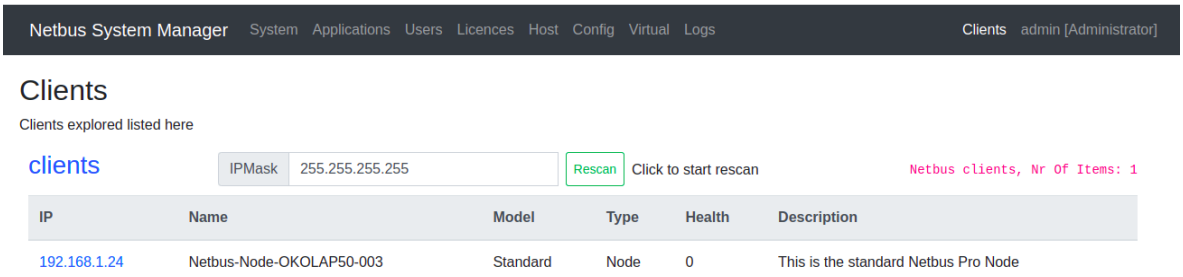



| Actions | Status | Alias | Command | Path | Args | Options |
|---|---|---|---|---|---|---|
| Edit Stop | Started | NetbusPro | sudo dotnet exec | /home/root/Publish/Netbus/NetbusPro/NetbusPro.dll | | autostart=10 |
| Edit Start | Stopped | NetbusStorageServer | sudo dotnet exec | /home/root/Publish/Netbus/NetbusStorageServer/NetbusStorageServer.dll | | |
| Edit Stop | Started | NetbusGUIGenerator | sudo dotnet exec | /home/root/Publish/Netbus/NetbusGUIGenerator/NetbusGUIGenerator.dll | | |
| Edit Start | Stopped | NetbusS7Link | sudo dotnet exec | /home/root/Publish/Netbus/NetbusS7Link/NetbusS7Link.dll | | |
| Edit Start | Stopped | NetbusModbusLink | sudo dotnet exec | /home/root/Publish/Netbus/NetbusModbusLink/NetbusModbusLink.dll | | |
| Edit Start | Stopped | NetbusModbusRTULink | sudo dotnet exec | /home/root/Publish/Netbus/NetbusModbusRTULink/NetbusModbusRTULink.dll | | |
| Edit Start | Stopped | NetbusIEC104Link | sudo dotnet exec | /home/root/Publish/Netbus/NetbusIEC104Link/NetbusIEC104Link.dll | | |
| Edit Start | Stopped | NetbusEtherCATLink | sudo dotnet exec | /home/root/Publish/Netbus/NetbusEtherCATLink/NetbusEtherCATLink.dll | | |
| Edit Stop | Started | NetbusSimLink | sudo dotnet exec | /home/root/Publish/Netbus/NetbusSimLink/NetbusSimLink.dll | | |
| Edit Start | Stopped | S7PLCSimulator | sudo dotnet exec | /home/root/Publish/Netbus/S7PLCSimulator/S7PLCSimulator.dll | | |
| Edit Start | Stopped | SimIEC104 | sudo dotnet exec | /home/root/Publish/Netbus/SimIEC104/SimIEC104.dll | | |
| Edit Start | Stopped | StarComModbusSlaveSim | sudo java -jar | /home/root/Publish/Netbus/StarComModbusSlaveSim/StarComModbusSlaveSim.jar | | |

It is perfectly possible to enable / disable and configure the Netbus Pro Core services on the computer and the explored netbus devices through the Netbus System Manager web site.

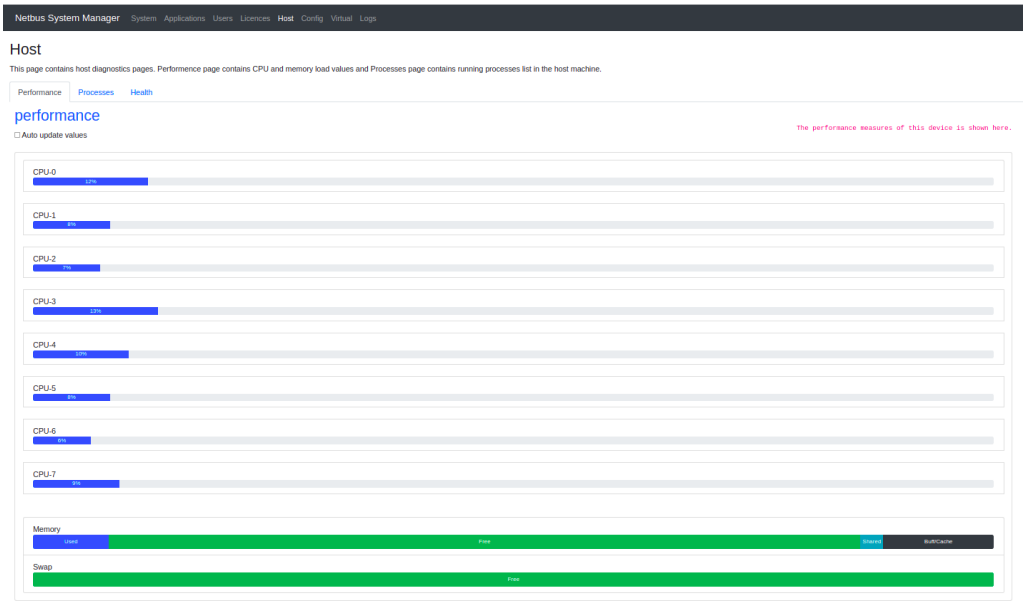
## 10.2. Exploring Netbus Devices through Web Interfaces

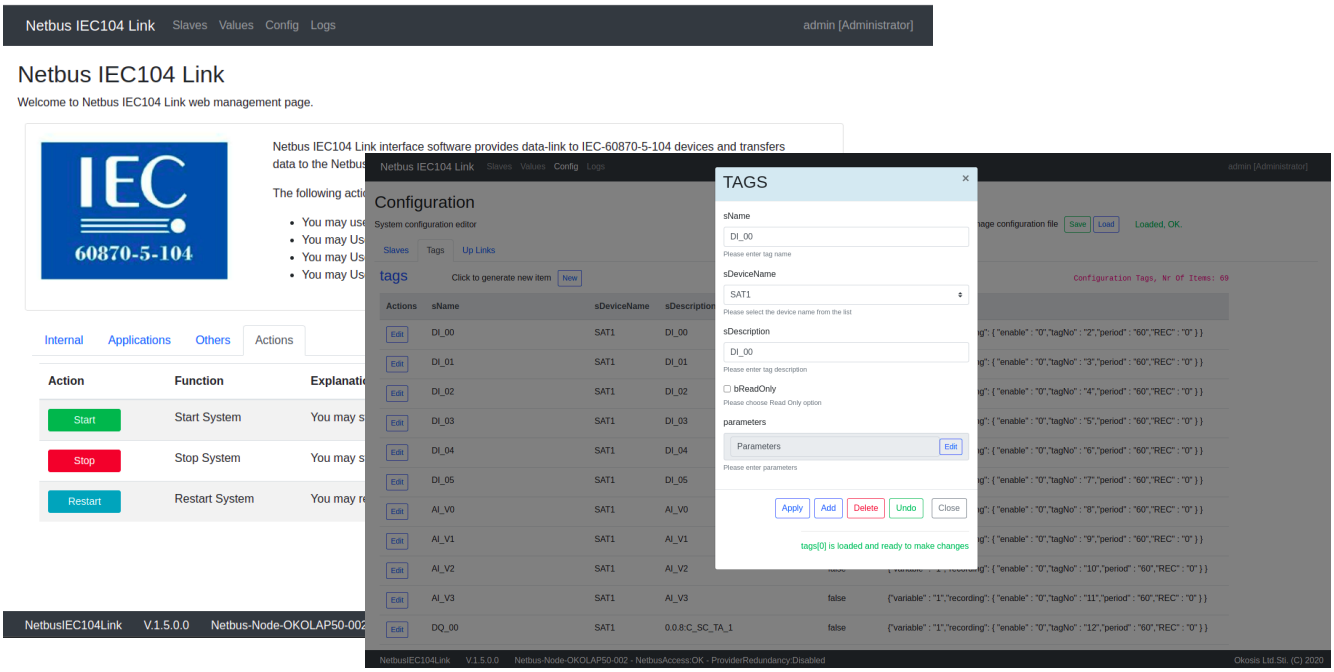
Netbus System Manager web site provides a “Clients” page to explore netbus devices existing on the same network as well as any device on the internet with an accessible IP Address.




## 10.3. Setting and Configuration via Web Interfaces

The user may access to configure and manage the explored netbus device using the Netbus System Manager web site with a valid username and password. Secure access is provided and only authorized access is allowed to perform management operations.



# 10.4. Configuration and Diagnostics Tools via Web Interfaces

Netbus Pro applications consist of several services which implement the tasks and a web site which provides GUI for configuration, management and diagnostics for this particular service. Every service has its own configuration, management and diagnostics pages.