Nautilus

Best-of-Breed solutions for System Integrator & OEM

New platform to design custom vision solutions for industries and manage in-field vision devices

Unique Solution

One software to control all Tattile's vision devices: Multi-cameras and Smart-cameras.

Open platform

Allows easily integration of third party libraries and developing of own algorithms using standard C/C++ code.

Simplified design flow

Nautilus supervises the entire process to make a state of the art custom industrial application and to achieve inspection needs in the minimum time.

Nautilus

Discovery

Automatic devices discovery and recognition

NAUTILUS automaticaly searches and recognizes all connected devices via IP; both Multi-camera systems and Smart-Cameras.

Quick image setup

Immediate Live view from cameras / Smart Cameras.
Simple image configuration management thanks to:

- Shutter, Gain, Strobe Slidebar
- Automatic White Balance
- Best focus setting function
- Histogram Display
- ColorMap view

Device I/O management

User can quickly verify I/O wiring and machine integration, reducing start-up time and simplifying electrical debug.

Simple Devices Management

Complete display of device configuration:

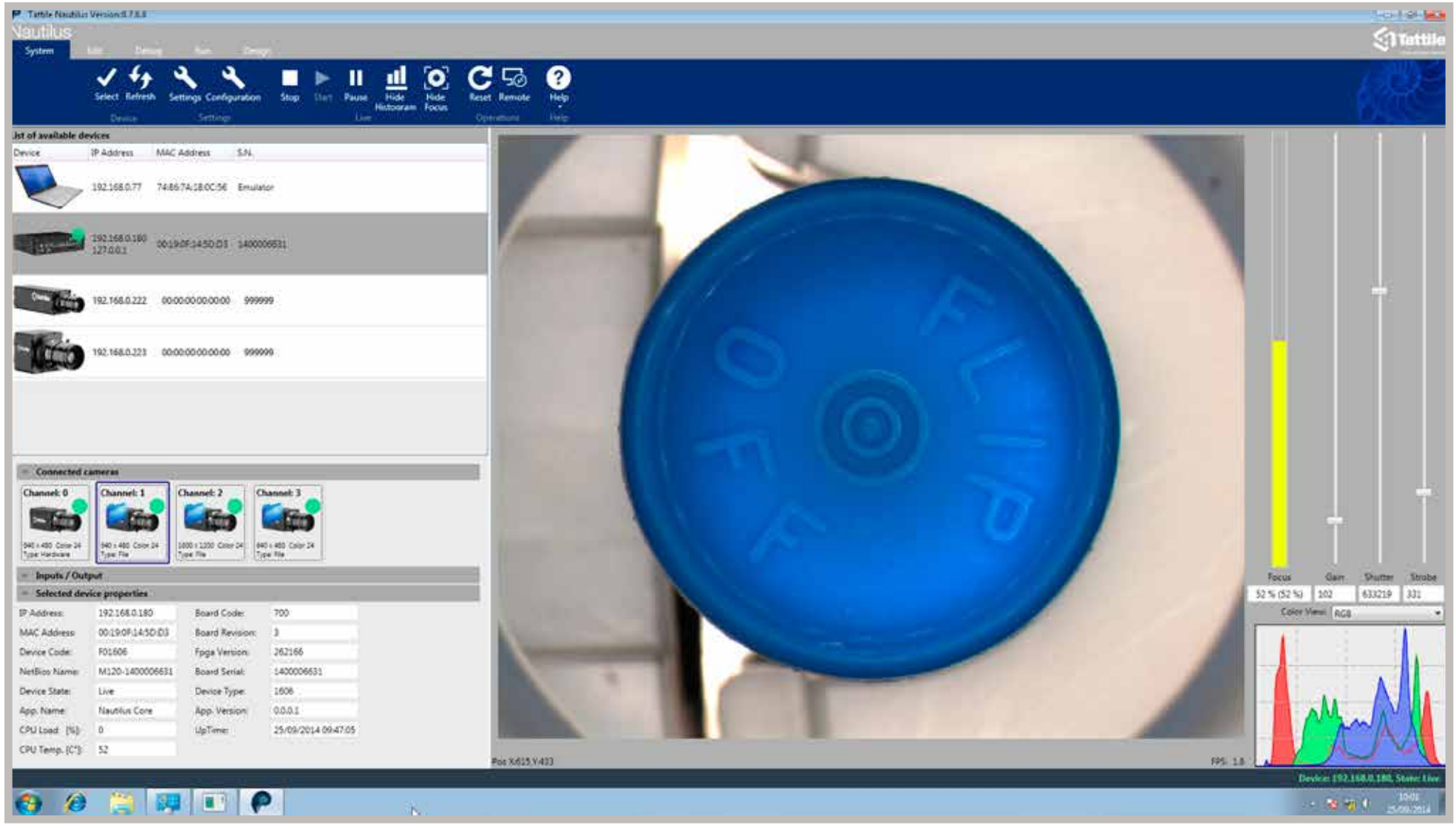
- Type and number of connected cameras
- Software / Firmware versions
- Device parameters

Users can easily manage:

- IP configuration
- SW & FW update

Device capabilities learning

Once selected the device to be programmed, NAUTILUS automaticaly acquire the device capabilities and configure the development enviroment for device compliancy.


Nautilus
System
Select
Refresh
Settings
Configuration
Stop
Start
Pause
Hide Histogram
Hide Focus
Reset
Remote
Help
Device
Settings
Live
Operations
Help
Device
IP Address
MAC Address
S.N.
192.168.0.77
74:86:7A:18:0C:5E
Emulator
192.168.0.180
127.0.0.1
00:19:0F:14:5D:D3
1400006631
192.168.0.222
00:00:00:00:00:00
999999
192.168.0.223
00:00:00:00:00:00
999999
Connected cameras
Channel: 0
Channel: 1
Channel: 2
Channel: 3
Inputs / Output
Selected device properties
IP Address:
192.168.0.180
MAC Address:
00:19:0F:14:5D:D3
Device Code:
F01606
NetBios Name:
M120-1400006631
Device State:
Live
App. Name:
Nautilus Core
CPU Load [%]:
0
CPU Temp. [C°]:
52
Board Code:
700
Board Revision:
3
Fpga Version:
262166
Board Serial:
1400006631
Device Type:
1606
App. Version:
0.0.0.1
UpTime:
25/09/2014 09:47:05
Focus
Gain
Shutter
Strobe
52 % (52 %)
102
633219
331
Color View:
RGB
Pos X:615 Y:403
FPS: 1.8

Developing

Device oriented workflow environment

Thanks to a simplified design flow, NAUTILUS allows supervising the entire development and delivery process to achieve production needs in the minimum time.
User can design his custom vision application exploiting a device-oriented workflow environment.
The application is built inserting vision and flow control tools into a graphical application flow by drag & drop paradigm.

Open Platform

Program steps can be configured so to tailor the application on specific elaborations.
Actions and algorithms can be implemented using standard C/C++ code.
NAUTILUS implements an open platform supporting the integration of 3rd party and open source vision tools and libraries like Halcon, MIL, OpenCV and many others.

Complete Algorithm set

NAUTILUS includes more than 250 vision and flow-control tools for application development; allowing to make a state of the art application.

Customizable user interface layout

The NAUTILUS interface layout is highly customizable, so users can adjust it to meet specific needs.

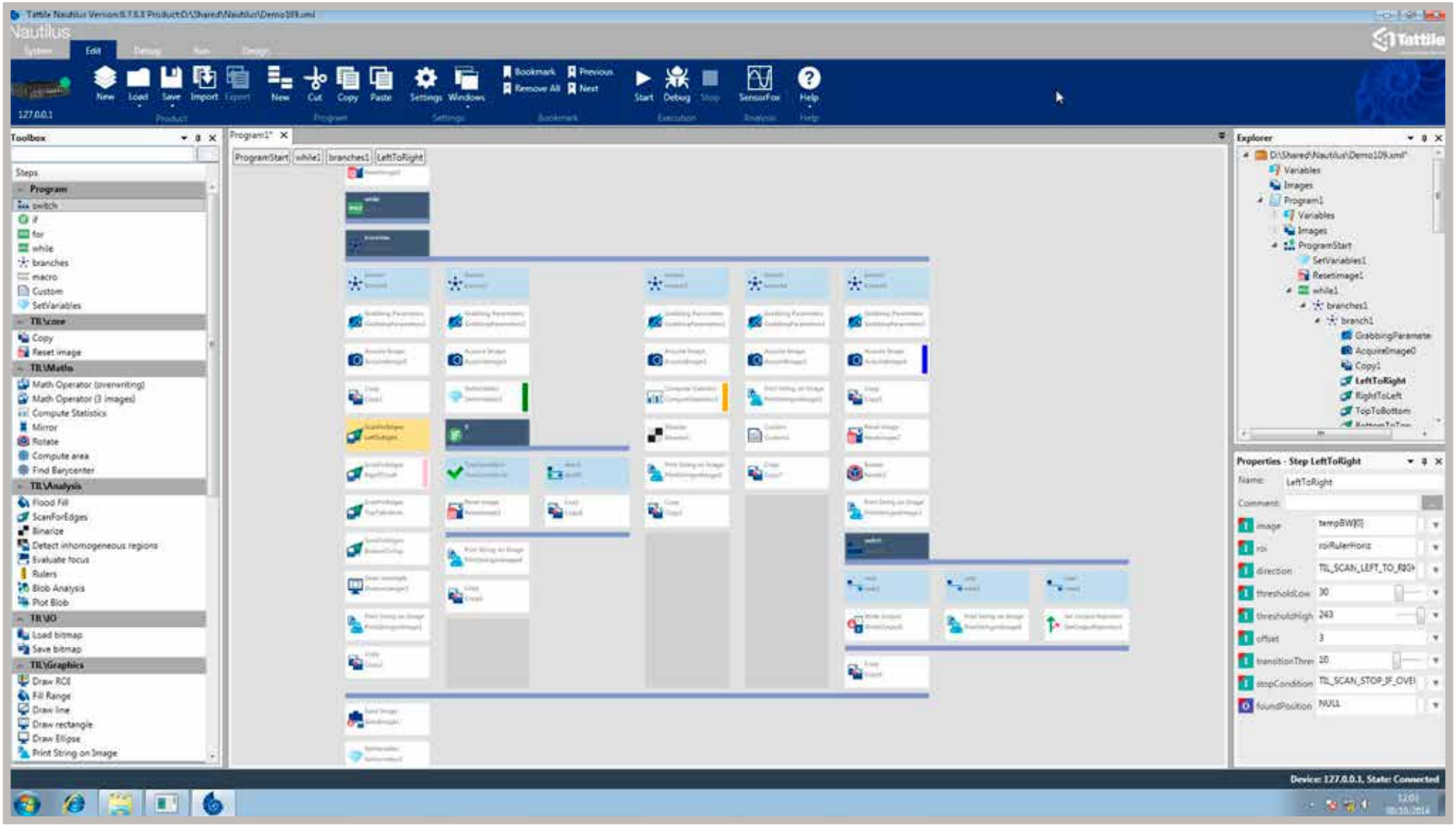
Multi-threading capability

NAUTILUS supports multithreading on application flow.
Developer can easily parallelize analisys in order to achieve high speed application.

HALCON the power of machine vision

MATROX IMAGING

Nautilus


Nautilus
Edit
Toolbox
Steps
Program
switch
if
for
while
branches
macro
Custom
SetVariables
TIL\Core
Copy
Reset image
TIL\Matlo
Math Operator (overwriting)
Math Operator (3 images)
Compute Statistics
Mirror
Rotate
Compute area
Find Barycenter
TIL\Analysis
Flood Fill
ScanForEdges
Binarize
Detect inhomogeneous regions
Evaluate focus
Rulers
Blob Analysis
Plot Blob
TIL\IO
Load bitmap
Save bitmap
TIL\Graphics
Draw ROI
Fill Range
Draw line
Draw rectangle
Draw Ellipse
Print String on Image
Program1*
ProgramStart
while1
branches1
LeftToRight
Explorer
Variables
Images
Program1
ProgramStart
SetVariables1
ResetImage1
while1
branches1
branch1
GrabbingParamete
AcquireImage0
Copy1
LeftToRight
RightToLeft
TopToBottom
Properties - Step LeftToRight
Name:
LeftToRight
Comment:
image
roi
direction
thresholdLow
thresholdHigh
offset
transitionThres
stopCondition
foundPosition
Device: 127.0.0.1, State: Connected

Debug and Test

Easily debugging

Step-by-step control, breakpoint over the application execution flow and runtime access to application settings, give users the power to debug and test applications at any time.

Advanced monitoring

Advanced statistics for monitoring steps execution time allow the user to verify and keep under control the whole process of analysis.

SensorFox, oscilloscope-like function, monitors I/O events in Real-Time for event management and time-chart analisys.

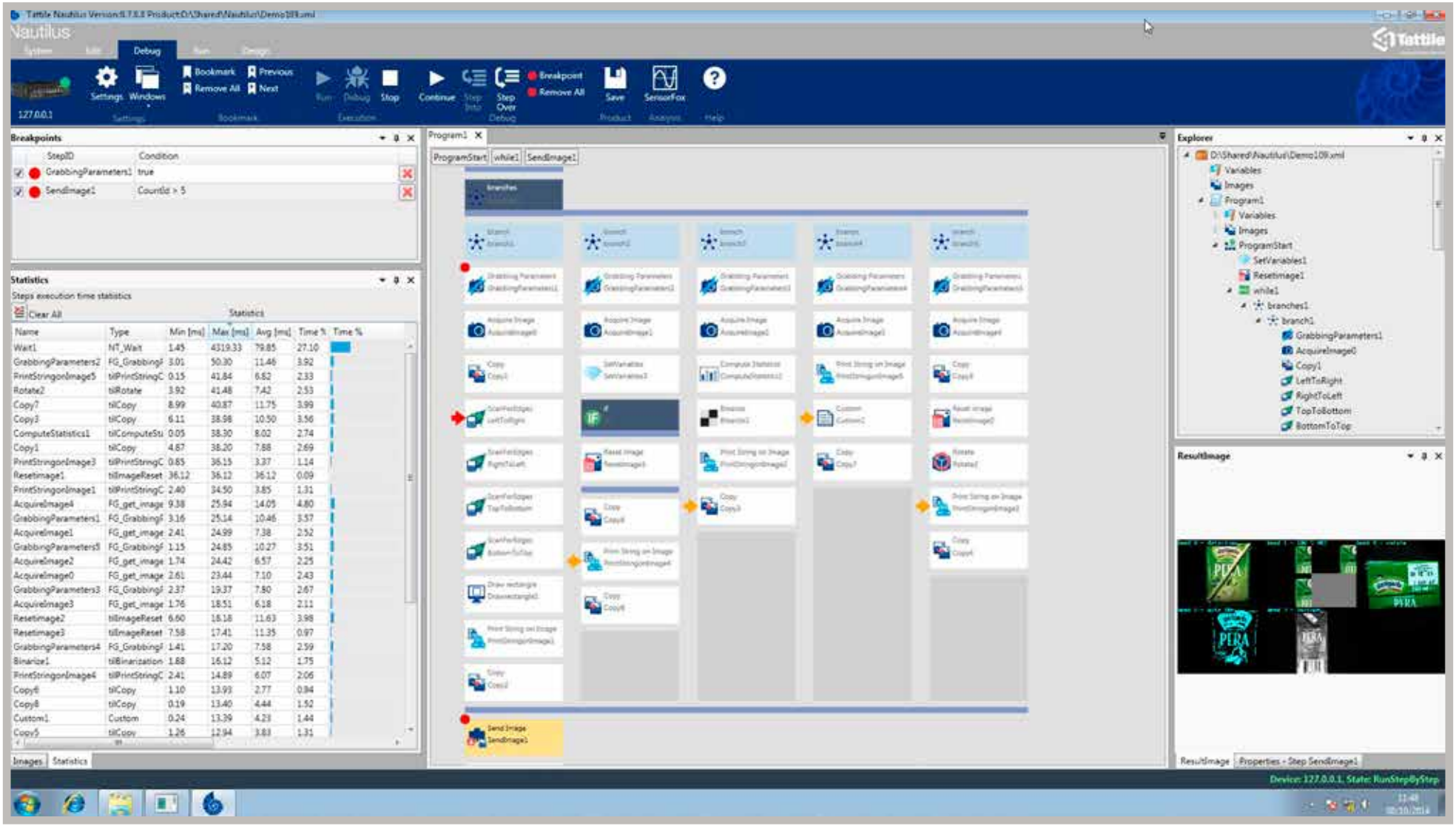
Emulator

An internal device emulator with target device specs enables users to start developing the vision application at early stages, and adapt dynamically to changing requirements in the environment.

Offline programming and debugging using internal device emulators reduce machinery stop time and increase production capability.

In-field Management

Management of in-field vision systems by monitoring and alerting; real-time access to device to control and change device behavior.


Nautilus
Debug
Settings
Windows
Bookmark
Remove All
Previous
Next
Run
Debug
Stop
Continue
Step Into
Step Over
Breakpoint
Remove All
Save
SensorFox
127.0.0.1
Breakpoints
StepID
Condition
GrabbingParameters1
true
SendImage1
CountId > 5
Statistics
Steps execution time statistics
Clear All
Statistics
Name
Type
Min [ms]
Max [ms]
Avg [ms]
Time %
Images
Statistics
Program1
ProgramStart
while1
SendImage1
Explorer
Variables
Images
Program1
ProgramStart
SetVariables1
ResetImage1
while1
branches1
branch1
GrabbingParameters1
AcquireImage0
Copy1
LeftToRight
RightToLeft
TopToBottom
BottomToTop
ResultImage
ResultImage
Properties - Step SendImage1
Device: 127.0.0.1, State: RunStepByStep

Design

Integrated GUI interface

Create your custom Grafical User Interface to control and monitor devices directly with NAUTILUS platform, without using external software.

Use Tattile's visual wizard to view and control images from devices and to visualize and control application parameters.

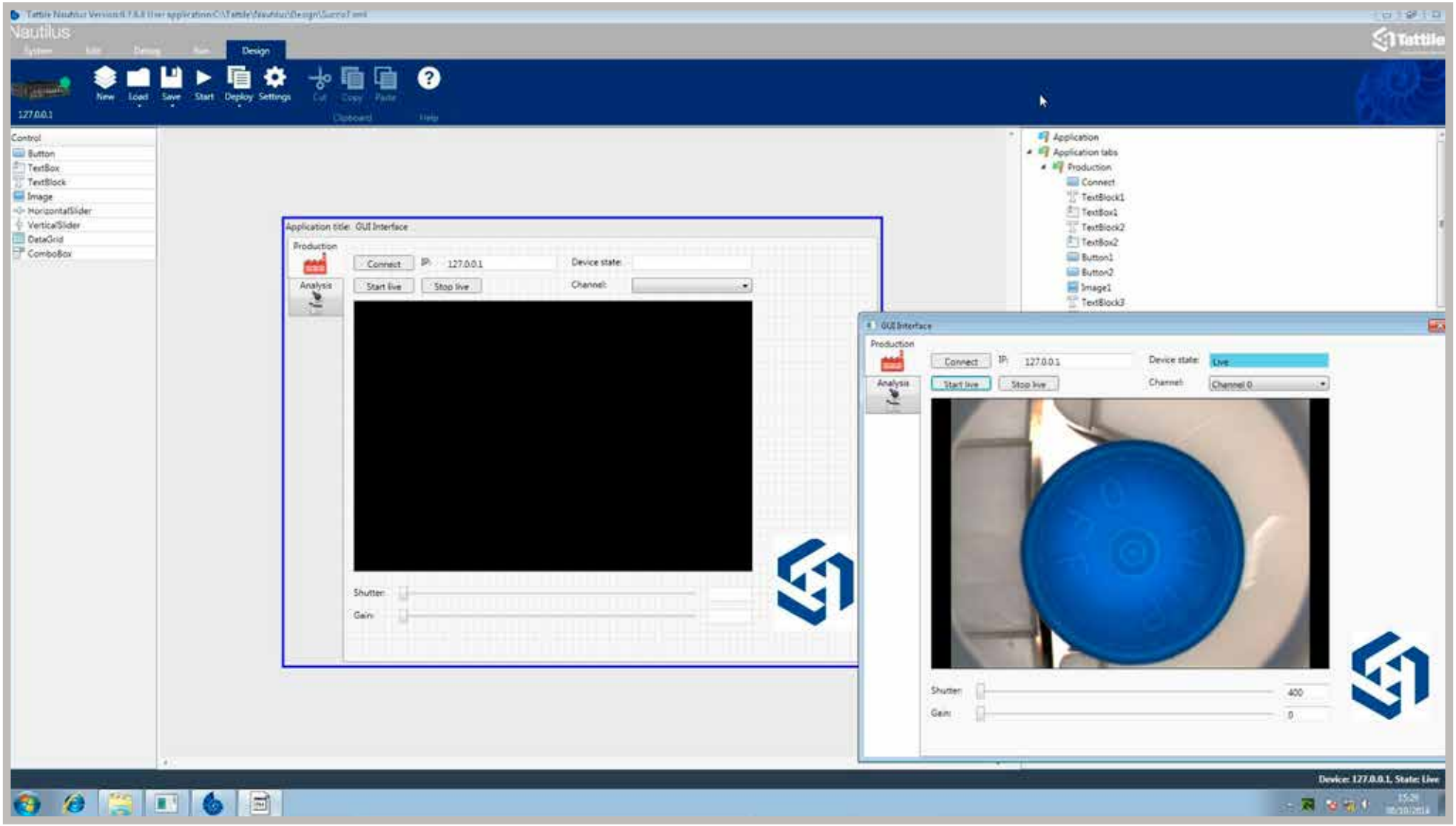
Multi-access Management

NAUTILUS allows you to create different interface programs that can be simultaneously connected to the same device. User can develop an operator interface for on-line monitoring and a supervisor interface for remote control.

Stand-Alone interface

Created interfaces are stand-alone programs, which therefore do not need the Nautilus platform to work.

User can install them on different PCs along the production line and inside the factory, allowing a multipoints management.


Nautilus
Design
New
Load
Save
Start
Deploy
Settings
Cut
Copy
Paste
Clipboard
Help
127.0.0.1
Control
Button
TextBox
TextBlock
Image
HorizontalSlider
VerticalSlider
DataGrid
ComboBox
Application
Application tabs
Production
Connect
TextBlock1
TextBox1
TextBlock2
TextBox2
Button1
Button2
Image1
TextBlock3
Application title: GUI Interface
Production
Analysis
Connect
IP:
127.0.0.1
Device state:
Start live
Stop live
Channel:
Shutter:
Gain:
GUI Interface
Live
Channel 0
400
0
Device: 127.0.0.1, State: Live