Movicon® 11.5

MONITORING VISION AND CONTROL

User's Guide

Movicon 11.5 - March 2016 Edition

INDUSTRIAL AUTOMATION SOFTWARE
progea

Contents

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Preface

The information contained in this Guide is an introduction to the general use of the Movicon software product. The user should refer to the Programming Manual or Help Online for more detailed information.

All the information contained in this Movicon documentation is based on the assumption that the following points have already been previewed and taken into consideration:

- All the illustrations used in this guide refer to the last Movicon version with Windows™ 7/8/10 (Win32/64) platform
- Windows refers to the Microsoft inc. Registered trademark in 7/8/10 or WinCE 5.x or later versions
- Crystal Reports™ refers to the product registered by Business Objects in version 10 or later
- Ms Access and SQL Server refer to products registered by Microsoft inc.
- Movicon™ refers to the supervision system developed by Progea and protected by the international Copyright laws

- Any other product or trademark mentioned whether registered or copyright to the related propriety company
- Windows has been installed on system. For information relating to this installation, please refer to the appropriate chapters in the Windows "Introduction Guide"
- Mouse has been installed. If not, the keyboard equivalents have been control checked
- All information contained in this guide is subject to change without prior warning due to system updating.

Introduction

Welcome to Movicon 11.5, the leading technology for Scada/HMI platforms based on XML to offer you an all-in-one environment from Windows® 10 to Windows® CE

Movicon™ 11 is the next generation of innovative Scada/HMI software technology for industrial supervision, data acquisition and control platforms.

Movicon represents over 15 years of technology evolution based on concepts of simplicity, scalability, power and openness. The "XML-inside" technology. It is a Progea exclusive enhanced to perfection with the latest 11.5 that is fully compatible with its previous versions. This latest version renews the supervision concepts of modularity and openness and anticipates the future of automation technology.

By maintaining and expanding its scalability characteristics, Movicon™ 11 as a unique SCADA/HMI software today offers the market a standard platform for all those operating in industrial automation, telecontrol and building automation sectors that can be

deployed for any application type and with any hardware type.

Movicon can be installed in touch panels and/or mobile devices based on WinCE and in PC touch screens with Win 7/8 Embedded. It can also be installed in systems based on PCs with Windows Desktop or Windows Server, in complex and redundancy architectures, client/server, connecting to any PLC type and industrial or civil fieldbus.

Each Movicon application, either in Windows™ CE or Windows™, supports the powerful networking technology where each device can be client, server or web server indifferently.

Universal Platform

Movicon 11 is a standard development platform for any automation level.   One software only for all factory levels, from WinCE embedded systems to Scada platforms based on Windows 7/8/10. Movicon 11 integrates all the necessary functionalities for any automation, visualization, data acquisition and control environment. Remote access is guaranteed by both Client/Server and Web Client architectures, rendering your plant truly Web-enabled thanks to the Apps and integrated Java and Web Services.

By using the Movicon 11 extreme connectivity, you will be able to communicate with any industrial device, PLC, fieldbus, instrumentation and remote I/O. All the well-known producers (Modbus, Siemens, Rockwell, Schneider, Omron, GE Fanuc, Saia, Mitsubishi, etc.) are directly supported with powerful and efficient drivers, with direct PLC variable importing.

By using Movicon™ you will at last have the chance to use all-in-one only software with any hardware and reap the benefit of being able to drastically reduce company costs.

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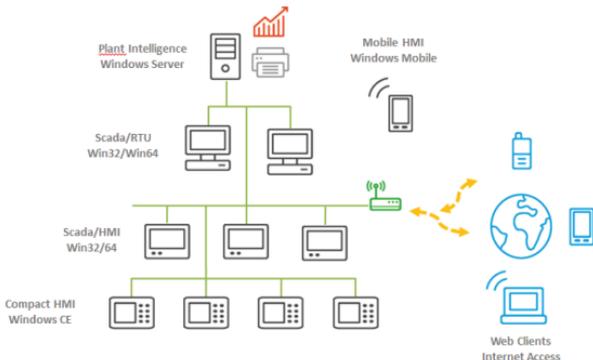
Key Features:

1. Tag Database open and performing. Complete data traceability and accuracy. Value Scaling and event management integrated in Tags, Traceability, Access Levels, native Tag sharing in real-time with relational DB using ODBC, shared memory and XML-link. Structure Variables. Direct importing from PLC database. Automatic and integrated management of remote connections using modems (RAS and TAPI).

2. Graphics Library with fully customizable captivating look and behavior. Command functions with simple and powerful graphical animations. Objects come with 16 animation properties; composed movements in editable trajectory, transparency functions in addition to colorings, fillings, and more.

3. Screens based on SVG (Scalable Vector Graphics) with powerful graphical functionality. Multi-monitor Support and parameterizable screens. Support to WMF, EMF, BMP, GIF, TIF, JPG and PNG graphics. Graphics auto-resized to screen with effective rendering for bitmap images.

4. Symbols with Power Template technology. Symbol graphics completely customizable using VBA scripts as well.

5. New classes of analog visual display objects based on .Net technology (Win 7 / 8 only) with unrivaled graphics.

6. Vector graphics edit functions, with powerful design and layout tools. Objects support heredity concept effectively.

7. New Refactoring tools, capable of automatically eliminating main programming errors (control and restore incorrect or non-existent names of Tags, links to screens, missing strings, and more).

8. Native and built-in support to Microsoft Visual Source Safe, ensuring maximum distribution and multi-planning efficiency, managing modifications and traceability.

9. Object oriented Menu Editors and shortcut keys. Completely built-in and simplified touch screen management functions.

10. Complete ISA ready Alarm Management. Alarms completely customizable with millisecond precision. Onset time-stamps, thresholds in variables, Alarm Power Template management. External Help in HTML as well.

11. Integrated Event and Alarm notification management. Supports SMS, Email, Speeching and Fax. Phone calls managed with complete on-call duty staff configurability.

12. Speech Recognition for supporting vocal command activation and acknowledgement.

13. Event Historical Log Management with open files based on relational databases (ODBC). Statistical Analysis on Alarms, filter and SQL queries. Print Management.

14. Multi-Language management with on-line language change. String management with dynamic text change both in programming and runtime mode. Support to Unicode for Asiatic languages.

15. Powerful Tracing and Audit Trail management for recording every process data variation, millisecond precision value monitoring, complete range of information relating to user names, electronic signatures, previous values, motive, and more.

16. Process Data Recording with object oriented Data Loggers. Powerful and secure automatic ODBC connection management for archives based on relational DBs. Support to IMDB as an alternative for recording in text and XML files with option to encrypt.

17. Statistical information management supported in any process tag. Each tag consents real and statistical values (i.e. For analyzing or programmed maintenance).

18. Dynamic Vectorial Trends and historicals with powerful sampling functions, visualization and analysis. Historical Logs based on Data Loggers with periodical analysis, zoom, averages, logarithmic scales and open to any kind of custom. Sampling with output on CSV (ie. Excel) files as well.

19. Data Analysis tool for visualizing curves graphically with additional functions not found in the Trends. Analysis with automatic preset time ranges, comparison curve tool, automatic measures between different points, and more.

20. Automatic Recipe Management based on relational DB or text files. Recipes are auto-configurable with one click automatic DB file and interface management based on toolbox objects or customizable.

21. Built-in Report Generator. Powerful and flexible Report Management thanks to the built-in Report Generator based on .Net, with powerful calculation, analysis and graphic display functions. Plus Crystal Report engine v.10 integrated. Front-end report generating with custom printing formats. Support to complex formula and graphics in Reports.

22. Integrated object oriented Event Schedulers. New schedulers consent sophisticated setting functions both in development and runtime mode, with execution time range, holiday and

command activation selections. All supported in WinCE runtime and Web Client.

23. Unrivaled Security management. Users and passwords with access to commands at 1024 levels and/or 16 areas. Automatic Operating System Access Control functions. Passwords settable at Tag level as well. User Passwords sharable with operating system domains.

24. Platform is FDA 21CFR Part 11 ready. Audit Trail management. FDA compliant applications very simple to create. Integration with Ms. Visual Source Safe for distributed planning in topmost security with project modification traceability.

25. Complete and powerful Redundancy management ((Hot Backup). Files are always synchronized and managed safety with reliability in all situations with complete and transparent availability. Secondary Server automatically takes over instantly upon any communication failures.

26. Powerful Networking management. Support to TCP-IP, UDP and HTTP protocols. Event driven notifications and optimized network management. Completely distributable. Multi-server architecture with security settable directly in project properties.

27. Extremely efficient connectivity using I/O drivers included with system. OPC DA, OPC UA and OPC XMLDA technology integrated as Client and Server. OPC compatibility certified. Sharable Real-Time Data using shared DB tables or an appropriate I/O in Shared Memory.

28. Built-in VBA language complete with multithreading. Extreme openness to customizing. The Movicon™ VBA engine is also supported in WinCE runtime. Support to .Net technology (VB.Net syntaxing for Win32)

29. Integrated PLC instruction List language (AWL). This language permits users to create simple logic with a PLC approach within the SCADA/HMI environment without needing any expert VBA language know-how.

30. Visual "Synapsis" Language in Function Block style with graphic objects using graphical designing techniques. Each graphical symbol can become a Synapsis logic block.

31. Powerful on-line Debugger for all Movicon™ functions. Analysis, tag forcing, project statistics, break-points and step-to-step logic execution and other powerful functionalities for project testing and documenting. Project debugging and downloading for remote systems in TCP-IP (both for WinCE and Win 7/8 as well.

32. Built-in Web Client technology innovation. The Web Client , based on Java technology, is truly web-enabled to guarantee openness and multiplatformness while maintaining performances, security and bidirectionality. Access to data from client stations also based on Javaphone cel phones (J2ME). No additional installation needed on Client or Server.

33. Native support to IP camera. Images can be displayed on WinCE and Web Client.

34. Support to the XML, ActiveX, ODBC, OPC, VBA, SQL, ADO, SOAP and Web Services standard technologies.

35. Great freedom to third party application integration no matter whether .exe or .DLL. Free Drivers provided for I/O sharing in shared memory. Option to use SDK for creating custom drivers.

36. Tag Cross Reference function.

37. Supports Multitouch and gestures.

Installation and Startup

The recommended procedures for installing, starting up and configuring Movicon and its correct use are described below. Even though an operating system configuration for hardware platform adaptation is provided with the Microsoft Windows' installation, you may find it to your best advantage to follow the indications below for further optimization.

Installing Movicon™

The procedures for installing Movicon on hardware platforms are simple and comply with the standards set by the Microsoft Windows specifications. Upon installing CD-ROM you will enter directly into the installation environment where guide commands will activate in order to install the desired Movicon components. If you wish to install Movicon manually directly from the CD, simply access the CD folders with the Windows Explorer and execute the "Setup.exe", for instance:

D:\Movicon\setup\Setup.exe

The Setup will start the Movicon installation procedures in the PC. Upon terminating a group of Movicon icons will be created and accessible by using the "Start" button from

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the Windows application bar. The Group of Movicon icons contain the link to the Movicon.exe file. The Movicon installation procedure is quick and simple. You will be asked to enter the name of the folder in which the necessary Movicon files are to be organized. If you do not wish to change the name or path, just confirm the "Movicon11.5" default folder which will be then created with this path:

"..\Programmi\Progea\Movicon11.5".

Uninstalling Movicon™

Movicon can easily be uninstalled removing all its files from the PC In compliance with the Windows™ standards. To proceed with uninstalling Movicon™ simply activate the appropriate icon from the Windows Control Panel used for installing/removing applications. The uninstalling procedure will completely remove all the Movicon files upon receiving confirmation.

Restore Default Settings

To restore all the default settings simply keep the "CTRL" key pressed down while starting up Movicon and release it when Movicon has completely started up. This will restore the workspace and content availability (windows, menus, etc) with their default parameters.

![Movicon 11 logo]

This command must also be used when changing languages with the "LangManager" tool in the Movicon development environment.

Movicon™ Execution

Movicon is a software platform that allows you to design engineer and run supervision applications. Movicon therefore functions in two modes:

1. Project Designing (Developement)
2. Running Projects (Runtime)

The platform is installed as an executable application available in two versions: Movicon.exe and MoviconRunTime.exe. Movicon.exe consents both project development and runtime execution, while MoviconRunTime.exe consents runtime execution only.

If not specified otherwise, the information given here refers to Movicon.exe, the product version which consents both development and runtime execution. Only the runtime execution engine (MoviconRunTime.exe) can be installed in plant systems.

Movicon™ Startup

The Movicon installation creates a group of icons which are accessed from the Windows' Start menu. When running Movicon.exe without specifying any options, it will startup in programming mode within the Movicon environment by automatically opening a new project or the last project used.
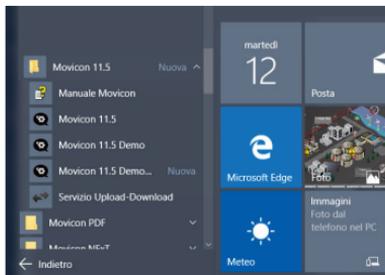
You can change the system's default settings, associate project files, custom modules and use other options as explained below by entering an appropriate syntax in the option command line at the Movicon startup. The syntax for starting up Movicon with the command options is:

Movicon /[Options] <project file>

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If you wish to start Movicon up and run a previously programmed project simultaneously, **you will need to use the /R. option**.

This is an example of a command line used to automatically run the TEST.MOVPRJ project file:

C:\Program Files\Progea\Movicon11.5\Movicon.exe /R C:\Documents\Test.movprj

If you wish to add or change the command options or the Movicon working folder in Windows, use the following procedures:

1. Press the right mouse key in the workspace of the Windows Desktop and select the "New - Shortcut" command.

2. Write the desired command line for the Movicon Startup in the settings window which appears.

Movicon™ Startup in RunTime mode only

Once you have created your project, you can start it up directly without entering into development mode. In order to do this you must create a link to the Movicon Runtime Module which is the "MoviconRunTime.exe" file residing in the same Movicon installation as explained above.
This is an example of a command line used to automatically run the TEST.MOVPRJ project file:

C:\Program Files\Progea\Movicon11.5\MoviconRunTime. exe C:\Documents\Test.movprj

The same result can be achieved by using "Movicon.exe." followed by the "/R" option as explained above.

Movicon™ Startup as Service

The Windows Services are applications which are run automatically at the Windows startup, before and independently from User

log on. Movicon fully supports the Windows Services as described below.

After starting Movicon up as Service and logging onto the operating system, the user interface will be shown as a Movicon icon in the Windows application bar instead of opening and displayed full screen. To open the project's user interface simply double right click on this icon.

In order to get the project's user interface to open automatically after Windows user logon, simply enable the project's "Show Service at Log On" execution property in design mode.

> The Windows Services management has been modified by Microsoft starting from Windows 7 to Windows XP. The graphical interface for services used to be opened in the Windows user interface in prior versions but it is no longer supported as from Windows 7 and subsequent versions. This modification therefore applies to Windows 7/8/10 and was implemented to increase security by keeping the services and user

applications in separate sessions.

> You can install Movicon as Service along with the development environment by using the "Install this Project as Windows Service" command or by using the Windows command line with the "/i" or "-i" option.

When executing the command line from the Windows "Start - Run" menu:

MoviconService.exe -i

Movicon will be installed as Service. Then you must add the parameter, which identifies the project that the service must run, in the Windows configuration Registry. The key to be modified is:

Windows Registry Editor Version 5.00

*[HKEY_LOCAL_MACHINE\SYSTEM\CurrentCon trolSet\Services\MOVICON\Parameters]
"Project"="C:\\Project
Path\\ProjectName.movprj"*

The text above can be copied in a text file with the ".reg." extension to create and insert the key automatically with a double-click on this ".reg" file. To insert the key manually use the following parameter group:

"[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\MOVICON\Parameters]"

Then create the "Project" key string type by inserting the "C:\\Project Path\\ProjectName.movprj" value.

Using Windows Terminal Server

Movicon supports the Windows Terminal Server (or Remote Desktop) and consents several program instances to run on the server. **A "NET" license is required in order to use Movicon with a Windows Terminal Server otherwise Movicon will run in Demo mode if a Normal license is used.**

"Forced" Startup in Demo Mode

Movicon can be started up in Demo mode by pressing down the "D" key when launching the application. This function is used to modify projects in PC workstations installed with only a software or hardware Runtime license that otherwise would need replacing. This function has been created for the sole purpose of modifying projects in remote control (with 'PCAnywhere' type applications), when impossible to remove licenses from PCs that are out of reach.

In addition, projects can also be saved when Movicon has been started up normally using a runtime software or hardware license. This is done by pressing down the "D" key while executing the project save command. This operation will enter the application into "Demo Mode" while saving the project as the same time. To exit from "Demo Mode" simply close and reopen Movicon.

Licensing and System Protection

Every Movicon package is supplied with its own license to protect the software and hardware from any unauthorized use. There are two types of protection to choose from:

- **USB Hardware Key (Dongle) (Not available for Movicon CE)**
- **SoftKey (Activation Code)**

The Movicon product version for Windows™ 32/64 is provided with a USB hardware key for default but includes both the above options.

LPT Security keys are only provided as replacements.

The compact Movicon™ version for Windows™ CE only comes with the softkey option due to the reduced size of the device and the impossibility to add hardware components.

The Dongle can be used by users as a floating license because it is easily transportable from one PC to another and is independent from

any hard disk problem that may occur. The Softkey option which is a software license is easier to handle and unlike its hardware counterpart does not carry the risk of theft, damage or loss.

In both cases all products purchased with their correlated options have a serial number.

The program will be run in EVALUATION MODE if no dongle or softkey is detected when starting up Movicon.

NET License

The USB dongle is also available in "NET" version for network architectures with a "floating" mode. The USB NET key looks like a standard dongle but contains additional information relating to the number of network users, retrieved by Movicon when run. One individual NET license allows the key to be centralized in net and viewed by PC stations running Movicon™.

Runtime License

Movicon™ projects are executed in "Runtime" mode. Runtime can be activated directly at the Movicon startup (/R option in the command line), or by switching over to "Runtime" mode from "Design" mode.

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Movicon project execution in Runtime requires a regular Runtime License. Runtime licenses can be purchased as required according to those listed on the Progea price list.

Development License

Movicon™ consents project developing without imposing any functionality limits. When starting up in development mode without any license (hardware or software type) a window will display requesting you to enter your development code. This code must be obtained from Progea or your local dealer.

If you wish to continue developing in demo mode, simply press the "Cancel" button. By doing this you will be able to continue using the development environment for evaluation purposes only but without any technical restrictions. The "Evaluation Mode" window is shown at regular intervals to remind users that the product is without a license and can only be used for evaluation purposes only.

Demo Mode

If you don't have a Movicon™ hardware or software license you can still use Movicon in Demo mode to develop a project without any imposed limits as already explained above.

However when using Runtime mode, your project will have a limited two hour runtime only. Once this time has expired, Movicon will automatically close requiring you to start it up again for a further two hours use.

The limits imposed when used in Demo Mode (or Evaluation Mode) are:

- Runtime time limit (2 hours).
- No functionality limits. The number of variables, screens, alarms, Communication Drivers that can be used is unlimited.
- Limited to one WebClient User only.
- The "Evaluation Mode" window appears only at the project start up to warn users that the project has started up in demo mode. A warning message will also show in the historical log every 10 minutes during Runtime.

During RunTime mode the application may also enter into "Demo Mode" even when a license is being used for the following reasons:

1. **The license which has been installed is Development type only.**
2. **The license which has been installed enables a number of variable bytes inferior to the ones actually being used.**

Movicon enters into "demo mode" when the declared number of bytes in use on the license has been exceeded. In this case a message will appear in the "System" log and repeated every 10 minutes to indicate the remaining time. After 2 hours the application will automatically stop. If the number of bytes in use returns below the license limit consented within 2 hours, Movicon will re-enter from "demo mode" issuing a message to report the action in the "system" log.

When functions that are not enabled by the key such as DataLoggers and Networking are used in the project, a warning message will appear in the Historical Log and the Output Window to let you know that the functions in question are not active and therefore will not work.

When activating the application with the "D" key pressed down, Movicon will start up in "Demo Mode".

Installed Dongle Information

To get information on the necessary dongle requirements or on the dongle installed you need to use the "Check Options Used (Dongle Requirements)..." command, which is available when right clicking on the project name or in the Project Explorer's "Commands" window. A dialog window will open showing two TABs:

- **Dongle Requirements**
- **Dongle Options**

Dongle Requirements

The **Dongle Requirements** window is automatically compiled by Movicon according to how the project has been structured. Movicon will fill in the fields based on the options and resources which have been used in the project to make it easier for the programmer to set the license type needed for that specific project.

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Some fields are compiled by Movicon by simply saving the project. In order to set other fields, such as the Runtime "Total Number of I/O bytes" or "Total Number of Screens" the project must be launched in run mode and executed with its various features activated.

There are two values reported in each item shown in the window, the first indicates the total number of objects set in the project, while the second one (Runtime Column) indicates the maximum number of the same objects used during runtime mode and which the license is calculated on. For example, the

Total Number of I/O bytes" simply indicates the total number of bytes which have been declared in the project's RealTime DB. This value represents the total amount of all the project's variables, whether exchanged with the field or used in the project. However, the field in the "runtime" column indicates the maximum peak of I/O bytes reached during the project Runtime mode and these represent the value to consider for sizing the license. To get a clearer picture on how the I/O byte count is carried out for sizing the license during the Runtime phase please refer to the section headed **"Total number of I/O bytes Count"**.

Caution! The runtime value reported in the "Total number of I/O Bytes" field indicates the maximum peak reached when last in runtime mode. This value must reach the maximum peak of variables in-use during the project runtime in order to be considered for license sizing.

Dongle Options

This window shows the options which have been enabled on the dongle (hardware or software) inserted in the system.
The enabled options are shown in bold. The disabled options are shown in grey.

Serial Number	This field shows the serial number of the license used. The "0" value means that no license has been detected and therefore the system will work in DEMO mode.
Number of Enabled Screens	This field tells you the number of screens which can be used in the project.
Number of Alarms and Messages	This field tells you the number of alarms or messages which can be used in the project.
Number of Variables (bytes I/O bytes)	This field tells you the number of I/O bytes which can be used in the project.
Number of Enabled Drivers	This field tells you the number of Communication Drivers which can be used in the project.
Number of Enabled Users	This field reports the number of users who can use Movicon at the same time when using a license. This field will remain blank when a single license is being used.
Web Client Users	This field tells you the number of Web Client Users who can connect to the project at the same.
Development	When enabled this option allows you to develop the project.
ON-SITE Development	When enabled this option allows you to develop one single project. This project can only be run with that specific license.
RAS Management	When enabled this option allows you to use the functions for executing RAS calls in the project.

Alarm Dispatcher	When enabled this option allows you to manage the dispatcher for sending SMS, Vocal Messages, E-mails and faxes for the project's alarm events.
Synapsis	When enabled this option allows you to use the Synapsis objects in the project.
OPC XML DA Client	When enabled this option allows you to use the OPC XML DA Client in the project.
OPC XML DA Server	When enabled this option allows you to use the OPC XML DA Server in the project.
Alarm Statistics	When enabled this option allows you to display project alarm reports.
Data Logger	When enabled this option allows you to use the DataLogger object in the project.
VBA Drivers	When enabled this option allows you to use the Communication Drivers' Basic Script interfaces in the project. Without this option the "GetDriverInterface" method from the "PmeDocCmdTarget" interface will always return nothing and therefore it will not be possible to access the basic functions of the communication drivers which have been installed and are in execution with the project. This option is not provided with the softkey in desktops and is only enabled for MovCE when a full license is being used.
Networking	When enabled this option allows you to use the Networking functions in the project.
Redundancy	when enables this option allows you to use the Redundancy functions in the project
General Logic	When enabled this option allows you to use the IL Logic in the project.

| OPC Client	When enabled this option allows you to use the OPC Client in the project.
OPC Server	When enabled this option allows you to use the OPC Server in the project.

Total number of I/O bytes Count

The Movicon Licenses are based on both the options to be used and the number of I/O bytes needed. The byte count for sizing the license is only executed for those variables used in the following resources:

SERVER Runtime License	1. Communication Drivers. *Note: variables used for enabling static tasks are not counted.* 2. OPC Client and Server
CLIENT Runtime License	1. Network Client (Client side variables connected to Servers). *Note: keep in mind that networking variables required by clients put the relating variables in use in the Server connected to the field.*

The byte count, for sizing the license, is executed only for variables which are **In Use and not those connected**. For instance, a variable linked to the field, through a Movicon Communication Driver, is only counted when it goes in use, such as when a screen is displayed.

PLC

Movicon

Data Words

Tags Database

I/O bytes
Exchanged

4096

2048

0
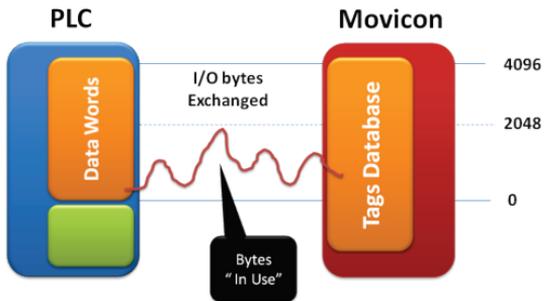
Bytes
"In Use"

This chart shows a project connecting 4096 I/O bytes simultaneously, but not more than 2048 Bytes actually go into use. Therefore a license with 2048 I/O bytes is needed.

Registration

The "Try before you Buy" Progea company policy consents the user to use the product in full operation mode, on an evaluation basis: if the software does not detect any license type, it will run in "Demo Mode" with full use of all functionalities in runtime mode, **with a 2 hour runtime limit.**

Product Registration

When registering the product upon purchasing a Development license, you are automatically entitled to the **product related services** provided by Progea or its distributors, according to the modes enabled on the license purchased. The product Registration can be done by filling in the registration form directly on the Progea website (www.progea.com). Only registered users can exploit the product related services and telephone Hot Line service according to the license modes enabled. If you wish further information on the technical help services, access modes and other benefits reserved for registered users, please visit www.progea.com.

Flexibility

Movicon guarantees maximum deployment flexibility, by offering an all-in-one environment to create and run scalable, modular control and visualization applications. The same XML project can be run on Windows 7/ 8/10 and Windows CE platforms indifferently. In all these cases, Movicon applications can be Client, Server or Web Server indifferently.
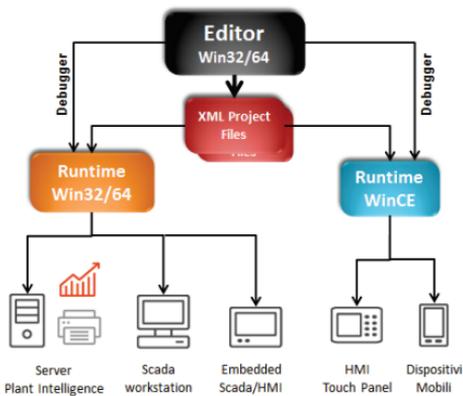

This flow chart shows the flexibility of Movicon application deployment.

System Architecture

Movicon 11 is based on the best and innovative software technology. It is structured completely on XML to guarantee performances and openness.

The Movicon platform philosophy is to promote maximum deployment flexibility to be used as a standard software platform for all those operating in industrial automation, remote control and building automation. This all-in-one Scada/HMI software is all you will ever need for any type of deployment.
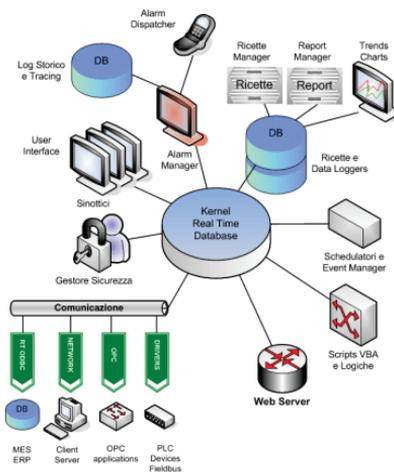

System Architecture illustrated in a block diagram.

XML Project Structure

The Movicon projects are simple standard XML files. Thanks to the XML "meta-language", the innovative Movicon technology offers the advantage of openness and performance.

Its openness allows each project or part of it (resources, objects and variables) to be edited with any other editor to the extent that you will no longer need to use export commands.

You can modify or manipulate any Movicon object or resource by simply using the copy and paste tools with any editor (e.g. Word, Excel, etc.).

A Movicon Object copied to Excel.

A Movicon project opened with Excel.
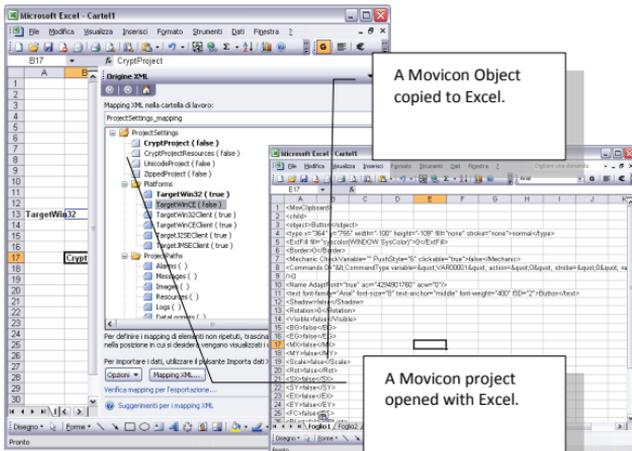
Each object's XML structure can be accessed directly through the XML Explorer window using the Movicon editor to modify its properties textually.
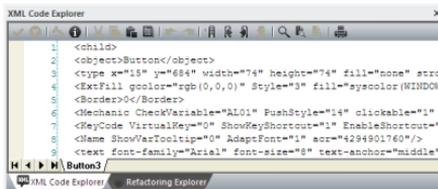
XML Code Explorer window.

Project Modularity

The Movicon projects support the "Parent-child" relationship concept. Thank to this concept one application can be structured on more than one project, where the "Parent" project can have different "Child" project relationships and at different levels. Even though "Child Projects" are normal Movicon projects which can be designed to work independently, they can also be linked to the Parent project to form a "Parent-Child" relationship. This consents the Parent project to obtain all the Child project's resources as if they were its own.

One project can be associated with several Child projects where anyone of these Child projects can be a Parent to other Child Projects. You can therefore create a cascading project tree with the various Parent-Child Project relationships. This possibility opens up the road to many types of advantages. We will look at the main ones below:

different independent projects, where the Team Leader is in charge of the Parent project containing the all the resources of Child projects from team members working independently on their own project. The Parent-Child project relationship is created using 'Dynamic Links' where the Parent can reference child projects without merging them in order to obtain their resources. Continuous automatic updating guarantees team member independence to continue working and updating their projects. The Parent project will be able to have its child resources which are distinguished by the child project path without name distinction or duplicating resource names. For instance, a VAR0001 in the Parent project and a VAR0001 in the child project are identifiable by the project's path name.

Note: This architecture provides an option to automatically startup child projects in Run mode when the Parent project is run. This option is provided in the project's "Child Project Option" properties.

Distributed Project Planning

Projects structured with Parent-Child relations offer many advantages to companies who work in teams. Compared to the conventional technologies where various people work on the same project each with a different task, Movicon offers the option to distribute tasks in

Distributed Execution

The Parent-Child relationship is very handy for plants or modular machines that are

located in different areas and that also function independently on their own. In cases like this several projects can be created, one for each area, and integrated into one Parent Project from which operators can access to the different Child project pages and variables.

Example:
Let's take an automated production line composed of 3 independent machines. Each one has its own project which is run on a local PC. Each of the three machines is integrated in the same individual production line and connected to a main supervisory PC, defined as the Parent Project, as three Child Projects.
One of the main advantages of using Movicon is that you can save a lot of time developing by creating a main supervision project, the Parent project, with three "Child Projects", one for each machine to reside on local PCs.
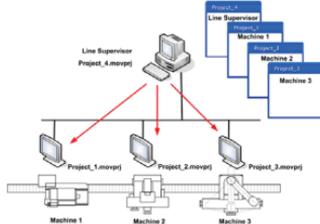
An example of project modularity and distribution. The local pc projects can be "children" to the production line management "parent" project.

By doing it this way, the parent project automatically obtains all the individual variables belonging to each of the various child projects, to produce summaries in general screen layouts. Individual screen pages from the child project residing in the machine's local PC can then be opened from the general screen layout residing in the Parent project. Not only do users benefit by saving time in developing project, they will benefit from having future machine modifications automatically available in the general supervisor as well.

Client-Server with Child Projects

Using the Parent-Child Project relationship can also be very useful in situations needing one Server station with a number <n> of the same Client projects.
In this case, by using the "Parent-Child" relationship you can create identical client projects that can be easily distributed throughout any PC network and that will not need modifying when the Server is modified. In order to achieve this you will need to create an "Empty" Client project and set it with a "Child" project that refers to the Server project. The child project may reside physically in the Client (with backup copy) or may be retrieved directly through the net from the Server. The latter configuration

permits you to use the same identical Client project in any PC connected in net. Therefore any Client can connect to the PC Server to launch project files. Furthermore, this technique is also recommendable for automatic software centralization: any modification you make on the Server will automatically be made available in all clients.

In an architecture where this example is applied, the child projects being autonomous would not need to be set to run automatically at the Parent project Start up in run mode which is provided as an option in the Project's "Child Project Option" property group. When using these options you will need to enter the Server project's (supervisor) IP address as well. It is also important to note that that the port numbers set in the Parent project's networking services must be different from those set in the child projects.

Visual SourceSafe Integration

Visual Studio SourceSafe integration and support consents safe access and manages the shared development of individual Movicon projects between several users. The Microsoft SourceSafe tool has been purposely created to manage project design engineering as teamwork and to maintain traceability of all modifications made to the project by the individual team members. This support has also been applied to the symbol library so that symbol categories can be shared between users by always using SourceSafe.

The Workspace

The Movicon 11 workspace environment has been designed according to several modern concepts of ergonomics and practicality. The Movicon platform has been further simplified to become even more userfriendly.

Users can now create visualization and control projects within a few simple clicks, using pre-configured symbol graphics libraries and toolbox, wizards and help guidelines together with all the tools needed for building immediate and powerful applications in next to no time.

Project Window.
Quick access to all the project's resources.

Symbol Libraries.
Customizable Symbol graphics and templates.

Screen Graphics editing area.

Properties Window.
Simple accessing to selected object or resource configurations.

Command Panel.
Commands and relating functions that can be inserted in the project show according to the resource selected.

Refactoring
Tool for checking and correcting errors.
XML Editor
Access to object XML codes.

Output Window
Logs all system operations and events in design and runtime

IL Logic Explorer Window.
VBA Language, VB.Net or IL Logic

ToolBox Area.
Object Library

Project Window

The Project Window is a tool by means of which the Movicon project resources are managed. All the resources and their contents are displayed in a tree structure. When a resource container or the resource contents are select, their relating properties will display. Menus relating to the selected resource are displayed by right clicking on the resource.
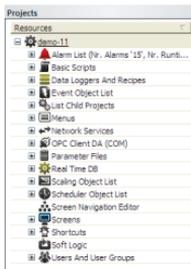
Project Window showing all the project resources.

You can access executable commands, according to the resource selected, from the Commands Panel on the Project Window's bottom border. The Toolbar on the top border gives you quick access to the project's resources.
This window can be kept visible, docked or dragged into the workspace.

The Properties Window

The Properties Window consents quick access to the properties relating to the resource of the object selected.
By using this window, the user can very quickly and easily configure the general, dynamic, style or security characteristics provided for the object or resource selected.
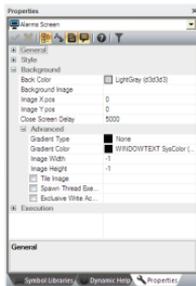

An example of a Property Window.

Also in this case, the window can be kept visible, docked or dragged onto the workspace.

The Tool Box

You can select any of the various drawings and controls from the Movicon ToolBox and insert them on screen. Each one of the components has been grouped in various categories within the ToolBox according to how they function. The ToolBox can be activated using the can be opened using the 'Toolbar' command from the 'View' menu. All the Drawings and Controls are vectorial type objects and have similar functions, especially those that have Animation

properties. You will also find many properties that are common to all the components.

Toolbox containing graphical objects.
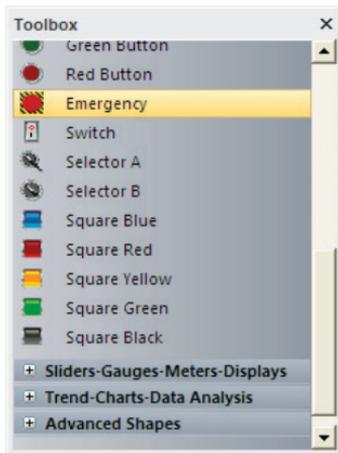
The Symbol Library Window

You can use customizable symbol libraries in the Movicon vectorial drawings. The system provides you with a pre-built library of standard graphic symbols, accessible through the 'Symbols Library', which can be used as vectorial drawings by the programmer when editing screens.

The 'Symbols Library' can also be expanded by allowing the programmer to create and add their own symbols.

The 'Symbols Library' can be activated with the 'Symbols Library' command from the 'View' menu.
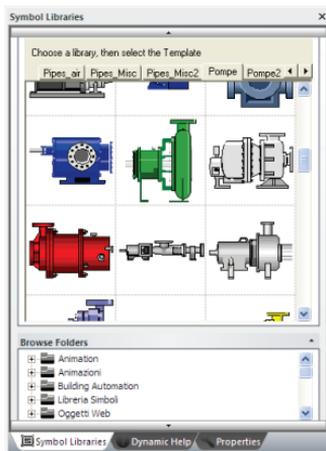
Symbol and Template graphics Library.

Wizards

Movicon provides Wizards that are tools used for creating projects automatically. These Wizards allow you user to predefine the complete structure of a new project by following a simple step-by-step guide. When you wish to create your project, Movicon allows you to define which platform you wish to design your project for. Features will be enabled or disabled if not supported by the target platform chosen. Once this operation has been confirmed, Movicon will then display the wizard to guide the user through the pre-setting procedures of the entire project.
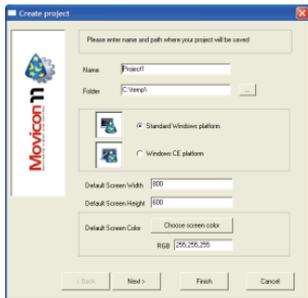
Each project setting automatically created by the Wizard can be modified afterwards by using the properties relating to each single resource.

Movicon has also been designed to allow users create and add custom wizards to those used by system. Therefore VBA macros can be used to generate project XML files by also using the guided procedures as well. This will allow projects to be auto-edited according to how the user customized the wizard to save even more time in developing them.

Realtime Database

The Movicon™ realtime database is based on an extremely fast and optimized technology which is totally event-driven and on a highly efficient thread polling management. The project realtime database file is completely based on XML, like the rest of the project. The Movicon Tags have many properties, allowing each tag to become a true and real operating center. Tags can be associated to commands to activate on event when preset threshold values are reached. They can be scaled, defined realtime connections to database, to OPC servers or clients and defined with networking modes. Each Tag is traceable with maximum accuracy in an appropriate DB with customizable messages. Tags can be defined with physical device addresses in their properties or be kept independent from the driver. They can be linked to the external world through a diverse number of I/O Drivers, OPC Clients or Servers, Networking, shared DBs or shared memory areas with other applications. The project tags can be imported directly from PLCs (Simatic S7, Rockwell, Mitsubishi and many others) with a noticeable save in time. Projects can also be associated with Dynamic object tags which are those not expressly declared in the current project (distributed Tag database structures).

The Realtime database supports 'Structure' type tags in heterogeneous data. The innovative scalability concept makes it possible to choose which Movicon license to use according to the number of tags "in use", independently from those declared in the project.
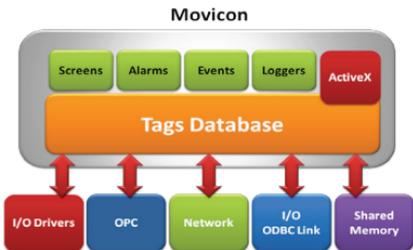

Architecture Block chart.

Movicon 11

Connectivity

Connectivity is the key factor to any exiting Scada/HMI platform type. Information must be able to flow and merge together in projects through different operating modalities, in order to have all information available in the application in the form of tags.

Movicon offers the greatest connectivity possible in today's world with highly efficient and performing tools.

I/O Drivers

Movicon offers a totally renewed I/O Drivers library with exclusive technology for communicating with the most popular automation devices (PLC, Fieldbus, instrumentation, networks). The Movicon drivers are based on the highly efficient Thread Pooling concepts, capable of managing communications with high performance and reliability.
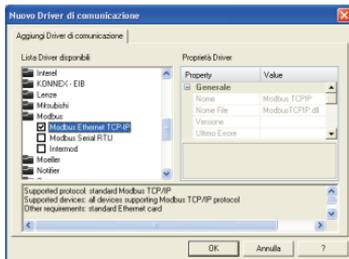
The drivers automatically optimize communications by exchanging only those tags effectively in-use in the project with devices. The features of the different driver functionalities are described below.

Automatic Tag Importing

This feature allows the user to import part or all of the variables from an existing PLC without having to define them in the supervision project. This saves a great deal to time and risk of making errors. Importing (available for Movicon Drivers such as Siemens, Rockwell, Omron, Mitsubishi, Modbus…) consents to the immediate creation of Tags within the RealTime DB, with the same name of the PLC, same data type (bit, byte, etc) and relating connection properties to the device address.

MultiStations

Each Movicon driver can be configured, (including when point-to-point) with multiple stations and communication channels to communicate with multiple PLCs that use the same driver and point-to-point serial protocols.

Bridging

The new Movicon drivers also support the Bridging function to allow other users to exploit the SCADA connection to the PLC via modem in order to perform maintenance operations directly on that PLC (i.e. Teleservice). This is an ideal way to carry out any PLC maintenance from a distance by using just the one modem and communication port on the PC.

Cable Testing

This function is simple to use and will save you time. Just press the appropriate Movicon button to immediately run a test on connections to the PLC. This test gives users the possibility to run a quick check on connections, cable wiring and sort device configuration problems out. This will save users the tedious task of communication debugging operations.

Debug

All driver debug functions can be enabled to allow the programmer to trace and monitor all information exchanged between the devices by managing the appropriate Log files. All the right tools are provided to allow users to manage the complete debug process thoroughly.

OPC Client and Server

The OPC technology (OLE for Process Control) is essential for guaranteeing openness and connectivity towards any industrial automation system.

Progea is an active member of the OPC Foundation and participates in defining the OPC specifications. As a consequence, Movicon conforms completely to these technologies and is certified as "OPC DA and OPC XML DA Compliant", both as Client and as Server. The OPC AE technology (Alarms & Events) is integrated in Movicon within the Alarm Window objects for the acquisition and visualization of alarms and events deriving from OPC AE Servers.

Importantly Movicon incorporates the new **OPC XML DA** technology so that the OPC connections can exploit the new XML and Web Services technologies to consent safe and truly distributed connections in public networks (internet). No other SCADA product has fully integrated the OPC technology like Movion has.

I/O ODBC Link

The Movicon's built-in ODBC technology (Open Database Connectivity) is not just for recording historical logs in open relational DB format. It can also be used for other things

as well with the aim to offer Movicon users a unique ODBC real-time connectivity function. Users can in fact define the Tag properties with connections (in read, write or read/write) to a database table in both real-time and bidirectional mode. This will simplify information distribution externally to systems such as manufacturing execution systems (MES) which are normally based on Relational DB technology (SQL Server, Oracle, etc.).

Data refresh times can also be defined variable by variable. The DB tables will then show a column reporting the name of the tags and a column reporting each of their real-time values. This is entirely managed automatically including ODBC connections to the database.

OPC UA Technology

The new OPC UA technology, which is available starting with the 11.5 version, is capable of satisfying the most modern connectivity requisites as required by the Industry 4.0 and Internet of Things. Obtaining connectivity with the OPC Server is guided and simplified. Tags can now be automatically created in the OPC Server items to enable users to reduce the time they spend configuring.
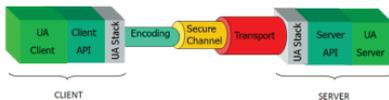
Transport is one of the OPC UA data model's essential components. It is the means with which data is connected within an OPC UA-enabled Client and Server infrastructure. The data are therefore independent from which transport they use to connect to third party systems.

Different types of transport can be used in OPC UA according to which priority is given to performance or security. It is also important that the transport used to establish communication between OPC UA Server and Client is appropriate and consistent as well. As OPC UA is used in client-server architecture, it is normal that such application take on both roles. This is because the server side (device to device communication) is often incorporated in the physical devices as well. For instance, a typical OPC UA application is usually composed of three software layers as shown in the figure opposite.

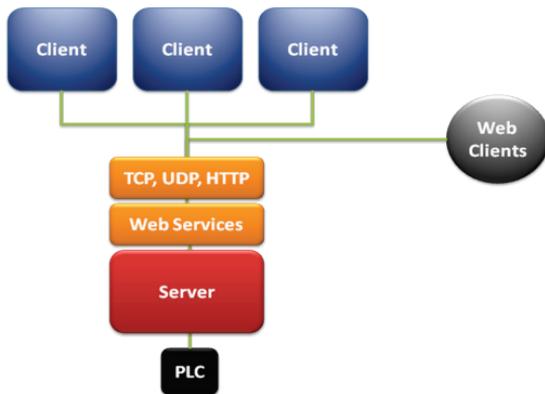Movicon 11.5 supports the OPC UA technology for the DA specification both as Client and Server (the server is optional).

OPC UA for Windows CE

Movicon CE 11.5 supports the OPC UA technology as Client in order to connect to any UA server device.

Networking

The Movicon Networking technology is without a doubt the platform's most innovative and evolutional feature. The Movicon networking technology is highly efficient and configurable and entirely managed on exception. It offers unmatched functionalities for any type of client/server architecture in local or geographical networks.

Network Services

The network services are fully configurable within the Movicon projects. The technology that is now deployed by Movicon has greatly improved performances due to additional kernel optimization and the totally "exception-based" structure.

The Movicon Server project's Ethernet connectivity can be customized in each small detail through its properties to allow network administrators to adapt notification message transmission to any architecture type. Among other things, the project also permits packet encryption while in transit, restricted access to certain IP address ranges, server or client name aliases, packet re-routing to other stations otherwise not visible in net, trace debug and traffic log modes. Many other configurable properties are provided in the properties window.

Block chart showing Networking Architecture.

TCP, UDP and HTTP Protocols

In addition to the TCP-IP protocol, Movicon has also incorporated the UDP and HTTP protocols for connecting distributed projects in net. Thanks to this possibility of choice, the user has greater freedom in adapting their application exactly to the architectural needs of their client business management demands.

Client Rules

Thanks to the new Movicon networking technology, Movicon has also included the "Client Rules" concept, such as defining which project Tags (individually or in groups) must connect to Servers.

Each tag can be assigned with a defined project "Client Rule in their Networking properties. This permits the tag to connect to the server according to the modes set by its assigned Client Rule; for example, data groups can be connected based on their high or low priorities, or connect to specific user groups only for security reasons, or connect by using remote access (RAS) and other criteria.

Tag dynamic links in network between Server and Client (only read, only write or read/write) can therefore be totally adapted to the needs demanded by companies or manufacturing plants, giving network

administrators full potential in delivering the right solutions that best suit these needs.

RAS Stations

The Movicon project "RAS Station" settings permit you to define all the operating system's RAS parameters (Remote Access Service). Therefore network connections can be made automatic and transparent towards remote stations connected to each other via modem as well.

This very interesting feature is used in distributed projects to make it possible for their Network Services to use RAS to automatically connect two stations with each other, via modem, when the designated variables go into use. The Networking connectivity is also guaranteed when non-persisting connections (modem) between PCs are needed on the net.

Web Services

The Web Services provide the most intriguing innovation on the new technology horizons of diverse application connectivity in public networks (internet).

Movicon has adopted and integrated the Web Services technology into its networking system which is based on the emergent XML and SOAP technologies.

Movicon 11

The Web Services technology consents to transporting information in any type of network in complete safety that is "Firewall Friendly". The advantaged offered by the Web Services are essentially performances (XML), multiplatform (SOAP) and protected connectivity with Firewalls.

The Web Services technology is based on the new OPC XML DA specifications, thanks to which industrial applications can communicate with each other within a true web-based distribution framework. This technology exceeds that of the DCOM which is based on the preceding OPC DA specifications.

Movicon offers users great advantages in adopting the Web Services technology. This technology is indispensable for all those companies wishing to override current restrictions, which exist in DCOM-based applications, in order to expose data on the net in total security without the need to open firewalls for protection.

Graphics

Creating screens designated to visualization, monitoring and control (HMI) is extremely simple and powerful. Movicon provides users with an unrivalled graphics management that has proved to be optimal for all supervision systems.

Cross Referencing

Movicon enables users to cross reference project tags and screens. This functionality is very handy for quickly finding out which objects or resources the tags and screens have been used in. It can also be used for documenting and printing.

Refactoring

The Movicon design engineers have come up with a brilliant Refactoring tool which is capable of automatically correcting the most common mistakes (such as tag or screen name changes or alerting non-existing variables). The Refactoring tool can control resources and intervene when mistakes are made using an inspector window within the project.

system. They can also be opened in "safe mode": Movicon will open them in a separate process to avoid any project instability that might be caused by ActiveX objects. In addition Movicon automatically adapts graphics to screen resolutions or window sizes with very efficient bitmap image rendering that can also be used as backgrounds like with external vectorials. The drawings you create can be static or dynamic in function with the Tags assigned to the various dynamic properties.

The Movicon editor is compatible with metafile formats (WMF, EMF) to which drawings can be exported and imported. In addition, the screens and symbols support BMP, GIF and JPG, as well as WMF and EMF images. Screens consent to **parameterization**, to save time in development and repetitive configuration tasks.

Graphics Editor

Movicon has a complete vectorial Graphic Editor based on the SVG technology that you can use for creating object and symbol oriented drawings (lines, dashes, polygons, texts, symbols, etc.) that are easy to configure and animate through the property windows.

The screens are the graphical resources designated to contain drawings, symbols and graphical objects. These screens can be managed with all the operative modalities used in Windows (movies, pop-ups, modals, etc.). Each screen can be assigned to different monitors as part of a multi-monitor
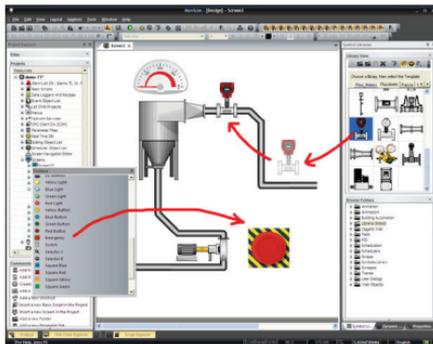
Movicon 11
monitoring vision and control

The ToolBox

The ToolBox gives you access to the ready-to-use vector object libraries. The graphics and command functions have been prebuilt in order to design projects quickly. By using this ToolBox you can select the object type desired, drag it on screen and configure it through its properties.

The Toolbox objects are very eye-catching and stylish with powerful functionalities. Movicon offers much more than just the simple graphical object most commonly used in HMI applications. In the Movicon Toolbox you will find a variety of object types in a diverse range of categories:

Buttons (in various styles), Selectors, Switches, Emergency, Option boxes, editboxes, Meters, Bar Graphs, Sliders, Gauges, Spins, List Boxes, Combo Boxes, DB Grids, Tab Groups, Viewer Window objects (Alarms, Logs, Trends, DB Viewer), Charts, Time Controls, Hot Regions, and much more.

This vast choice of top quality graphics also come with inbuilt powerful functionalities to suit every design engineer's need to create applications with highly professional and captivating User Interfaces effortlessly for immediate deployment.

The object-oriented programming uses the drag&drop techniques to insert symbols and objects on screen as well as to assign tags. Configurations are done using the property windows.

Symbol Library

Movicon provides users with a library full of standard symbol graphics which are most, commonly used in process and automation plants. Most of the symbols come ready prefigured with animation. Therefore all the user has to do is assign the desired tags. The Symbol Library is completely customizable and extendable allowing the user to add their own.
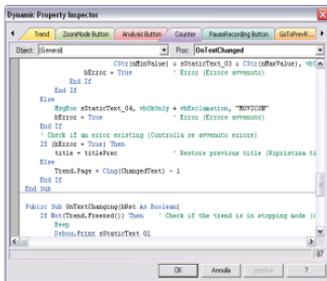
VBA Script code inspector window (Dynamic Property Inspector) shown when Template is inserted.

Symbols generate events to which VBA script logic can respond to allow powerful graphic and command functionalities (Power Templates© technology). The graphics can be

dependent on tag qualities or connected users. For instance; a graphical object can be made inactive or invisible according to user level or Tag quality status.
The symbols support the "heredity" concept, consenting to speedy modification propagation of one symbol to other symbols belonging to the same family in the project.

Power Templates

The most essential requirements while working within the develop environment is the capacity to maintain and safeguard any work carried out while design engineering your projects. This is the philosophy with which the templates are based on. The templates are symbols which are stored in the Movicon Library with the capacity to retain their execution modes. Graphical Symbols, Alarms and Data Loggers can all be used with this template technology to enable the design engineer to save their configurations as templates in the Movicon Symbol library. This is very handy when needing them later for further project planning, repetitive object configurations of the same type and graphical Alarm/DataLogger Symbol associations. Furthermore Movicon allows the design engineer to use VBA script technology for managing graphical interfaces by offering it as an option in each Screen, Drawing or Symbol in addition to execution property configurability.

The VBA Script code can be executed in response to events generated by the drawing. Methods, Procedures and Properties are left to the programmer's full disposal in order for VBA code to work, not only in the project resources but also in the drawing itself to modify all its graphical properties. The Power Template© technology therefore allows users to create their own libraries of extremely powerful graphical visualization and command objects.

A practical example of using the template technology: let's suppose we need to create a project with 100 'out-of-position' alarms linked to 100 plant valves. By using the "Power Template" technology we can first create the graphics of a valve symbol with the animation as desired and then an "out-of-position" alarm. Once finished we can then save the symbol in the Library to be associated with the relative alarm. All that remains is to insert the valve symbol on screen when needed leaving Movicon to create the variable and alarm associated to it by automatically assigning a free name and path.

Dynamic Animation

The Movicon graphical animation functionalities are extremely powerful and versatile. Each graphical symbol has 16 different animation types, which can be easily configured in their properties.
In addition, each drawing can be associated with VBA code to respond to events generated by the drawing itself or for performing other graphical and command functionality (Power Template© technology). When assigning one or more of the symbol dynamic properties, you can associate tags in the pre-chosen animation properties.

Command Execution

Command lists can very easily and quickly be assigned to all the graphical objects in the ToolBox. Objects predisposed for command execution (ie. Buttons, hot region, etc) provide a simple and userfriendly selection window for selecting and setting commands you need.
Analogously commands can also be assigned directly to Tag thresholds, schedulers and resources (menus, alarms, etc).
Each command can also be assigned with specific execution properties using the same window.
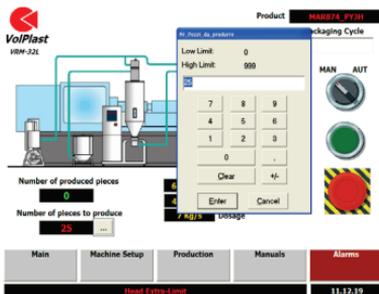
Touch-Screen and Virtual Keypads

Touch-screens are now common place features for any HMI system and as a consequence Movicon also has functions that automatically manage tools for editing numeric and alphanumeric characters without using keyboards. Purpose-built commands can be associated to any command object to permit the automatic displaying of the "Virtual Keypad" in association with the Tags desired. This allows users to digit the values desired which will then be attributed to the tags upon confirmation. The keypads presented for default can have their texts customized but not their graphics. However, users can create their own custom keypads as preferred by using the Movicon screens and symbols.

Movicon 11

Multitouch

The Multi-touch feature is supported by Movicon 11.4 version to improve HMI user experience.

The multi-touch user interaction with project functions can now be done using intuitive gestures such as those used with modern tablet and smartphone mobile devices. In addition, Movicon also supports the Multi-touch feature for multipoint tapping. This is particularly useful as a safety precaution in hazardous working conditions to oblige the user to tap two command objects contemporarily on the startup screen using both hands.

One remarkable aspect about this technology is that the screen area can be expanded or reduced in size by just using two fingers to pinch to zoom in and out. This technique is much easier than using the traditional methods such as the mouse device or pen tool.

Texts and Change Language

Movicon supports the On-Line Change Language function. All the texts belonging to the project, alarms, static or dynamic strings can be updated in the language desired without needing to restart the project. The change language command can be activated on command (from predisposed objects) or on event as pre-set by the programmer. The change language (**if more than one is needed**) can be also activated with a double click on the status bar indicating which language is active, in both Runtime or in Design time.
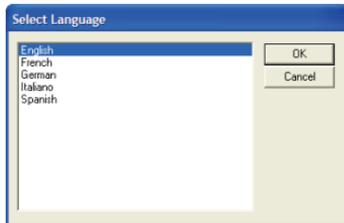
The project texts (strings), residing in the String Table, can be imported or exported by simply using the "Copy&paste" function. All of the project strings are composed of XML files (one file for each language) that are easy to access and edit with external editors. The Unicode property (also UTF16) can be activated within the project to support Unicode characters for Asiatic or Arabic languages. Furthermore, a default language can be associated to each user that will automatically activate when the user logs on.

![Movicon 11 logo]

Schedulers

Movicon has a Scheduler resource to activate repetitive commands at certain times and on certain days, weeks, months or year. Commands or command lists can be configured to activate according to custom time tabled periods and time ranges. These settings can also be done using the properties window.

The scheduler settings can be configured in Runtime as needed by the user according to how the project has been programmed by the design engineer. The Movicon schedulers come in two different modes: timetable or chart.

The Timetable mode allows you to select the exact hour and minute, the variable associated to the command and the assigned value.

The scheduler window objects are also supported in Windows CE and Web Client use.

Holiday Schedulers

Holiday periods are also supported and can be managed within the Movicon Schedulers by configuring the appropriate settings as needed. You will also find a Power Template in the Symbol Library that allows you to use simple-to-use graphics to assign holiday periods. When selecting the "Holidays" button, the displayed and memorized timetable will refer to the set or selected holiday periods (Holiday dates may be associated with one or several commands or none at all).

IP Camera Viewer

The IP Camera Viewer is one of the many interesting objects you will find in the Movicon library and it is used for visualizing images deriving from IP cameras.

HTTP and Motion JPEG Protocol

The HTTP standard or Motion JPEG protocols can be used to communicate with the Movicon "IP Camera Viewer". The HTTP protocol closes the communication channel when each request has terminated, then re-opens it when another request needs to be made. This means that each time this object requires an image, the HTTP channel is opened and then closed (this solution is used in order to allow greater compatibility with the different types of IP Cameras currently available on the market).

The "Motion JPEG" communication modality allows the HTTP communication channel to be left open to allow faster data reading but unfortunately this protocol does not support all IP cameras available on the market.

The "IP Camera Viewer" object's " IP CameraDownload Type" execution property can be used for selecting which protocol to use.

|	
Axis cameras	http://<server>/axis-cgi/jpg/image.cgi
StarDot NetCam	http://<server>/netcam.jpg
StarDot Express 6	http://<servername>/jpeg.cgi?<camera number>
PiXORD cameras	http://<server>/images<channel> <resolution>
Panasonic cameras	http://<server>/Snapshot JPEG[?Resolution=<resolution>][&Quality=< quality>]
D-Link cameras	http://<server>/cgi-bin/video.jpg
Digicom IP WAVE	http://<server>/image.jpg

Alarm Management

The Movicon Alarm management is ISA (S-18) ready and completely configurable to adapt to any application need. The project alarms are grouped by objects which are then grouped by threshold. Alarm activations can be determined by fixed threshold values or by other variables.
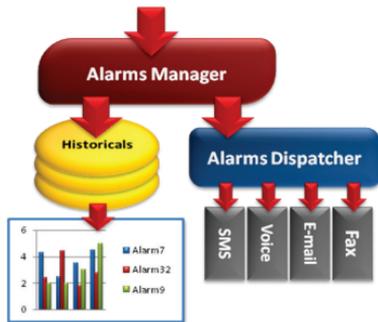
This flow chart shows how the Alarm Management functions.

Each Alarm can be configured with Ack or Reset operations, style type and how they function. They can be assigned with an unlimited number of priority levels by the programmer. They can be grouped by "Area" in order for the operator to apply filters to obtain data to display and view or dedicated Alarm Windows representing each individual plant section. Time-stamping is accurate to the millisecond. In addition to the operating status, Movicon also displays the ON-OFF duration time totals for each alarm. Histories of all recorded events can be viewed for each active alarm **selected**. The alarm management is extremely simple to use in network architectures as alarm windows can be connected to network stations and OPC AE Servers. The Alarms are supported in Tag text associations, therefore real-time values upon alarm occurrences can be displayed and recorded. Alarms manage notifications by SMS, Fax, Email, Speeching and customizable sound files. They can also be customized to send notifications on activation, acknowledgement and reset using VBA script in response to each individual alarm event.
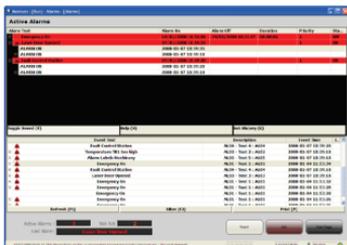
Alarm Viewers

Active alarms can be viewed in projects according to the described configuration options by using vector Alarm Viewer objects from the Toolbox. These objects are completely configurable in style and function by the programmer. The Alarm windows also have dynamic animation properties allowing them the freedom to be displayed as established by the project developer and not by the system. To enable this, the project developer can use the various style and

adapt the project's alarm windows according to client or plant needs.

Like all project texts, the alarms support dynamic Change Language, custom Help and Operator Comments. In addition, each alarm's chronological history can be displayed in order to check the progress of each alarm. The alarm window can be connected to any network station (Network Server) to view alarms from one or more remote Movicon stations. The customizable beeper sound also supports the .WAV sound format. The alarm guide management is also customizable. In addition to the normal guide text, you can also hyper link Help files (.CHM or HTML) to manage images, movies and hypertext linked directly to each single alarm. The guide or step-by-step guide can be managed in Movicon in HTML format by using the Web purposely designed Viewer symbol from the Symbol Library.

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montoins vision and control

Alarm Operativity

The Alarm Window operates with the following modes in Runtime:

Sort by	By clicking on the column bar description, Movicon put into the relating order. The columns available are: 1. Description Text 2. Alarm On Time 3. Alarm Off Time 4. Alarm Ack Time 5. Alarm Reset Time 6. Total Alarm time ON 7. Duration 8. Priority 9. Alarm Status / Condition
Help	The Help button displayed the text string associated as the alarm's Help.
Toggle Sound	Button for enabling/disabling associated alarm sound.
Ack Sel	Acknowledges the selected alarm only.
Ack All	Acknowledges all alarms.
Reset Sel	Resets the selected and acknowledged alarm only.
Reset All	Resets all acknowledged alarms.
Get History	Displays all the event recorded on Log fro the alarm selected.
Double-click on alarm	Double-clicking on the alarm will execute the command in runtime as pre-established by programmer.

Alarm Banner Visualization

Movicon provides users with an "Alarm Banner" viewer object in the toolbox with the option to display text string as banners for active alarms. Any one of the viewer objects can become a banner (i.e. Display, rectangles, symbols) to represent a rotation of active project alarms in runtime by associating it to an appropriate System Variable. This can be obtained by inserting System Variables in the project beforehand and using them as _SysVar_:LastAlarmText variables.

> Remember that the application status bar displays all the events, messages and alarms for default. The last alarm or event will always remain on display.

Alarm Dispatcher

Movicon integrates a powerful module for sending alarm and event notifications to recipients or recipient groups. Each alarm can be associated with E-mails and transmit file attachments. SMS can be sent by using the GSM or SMPP protocols.

The Dispatcher Manager also manages TTS (Text-to-speech) for vocal synthesizing alarm texts locally on the PC and by phone to notify recipients with remote control acknowledgement. Notification by fax is also supported. The recipient profiles can be modified on line using dynamic tags with the use of timetable and work shift managements. Thanks to the Dispatcher Manager, Movicon becomes a true and real notification center that contributes towards reducing plant management costs especially in unmanned plants.

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SMS - GSM Modem	Consents to sending SMS using common GSM Modems connectable to serial ports.
SMS - SMPP Sender	Consents to sending SMS usng normal telephone lines by means of phone operator services capable of offering server access with SMPP protocol. Note: Not available for WinCE
Voice Message	Consents to sending voice messages relating to text strings by telephone. A Voice Modem 100% compliant to TAPI and SAPI VER. 5.x specifications is needed. Note: Not available for WinCE
E-mail (MAPI)	Consents to sending E-mail messages using the electronic post program used and configured in Windows (ie. Ms Outlook). Note: Not available for WinCE
E-mail (SMTP)	Consents to sending E-mail messages over normal telephone lines and access to operators capable of offering E-mail messages by means of a server with SMTP protocol.
Fax	Consents to sending Faxes by normal phone using the Windows Fax printer (configuration through the control panel). Note: Not available for WinCE
Messenger	Movicon also supports alarm notifications to Microsoft Messenger contacts. Note: Not available for WinCE

Alarm Statistics

Movicon integrates functions to perform automatic statistical alarm analysis. Thanks to the pre-configured report statistics (also configurable), plant alarm total times or occurrence frequencies for preset time ranges can be calculated and displayed as reports and printed. The Reports give details on all the information relating to each individual alarm and relating statistics in charts (histogram and pie). The Alarm Analysis can be customized as pleased; for instance by cross referencing production data with alarm occurrences according to batch, product, shift and operator.

Customizable On-Line Help with Step-by-Step Guide

The alarm management provides users with the option to integrate step-by-step guide with information on operation procedures in the project. This information can then be associated to alarms or object components in coordination with external help files (HLP), HTML files or other. The custom help activation command can be directly connected to the alarms as provided for in their property settings.

Statistical Information

Movicon also offers the user the option to display and/or use statistical information that is associated to variables. For instance; you can set total time "ON" values for daily, monthly and yearly periods to generate alarms once the set value threshold has been exceeded. These values are particularly handy when managing Preventive Maintenance according to how long the machine is in operation for example. The statistical values can be reset by using the appropriate command which is displayed together with the other variable action commands.

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Historical Log

The Historical Log chronologically records all significant plant or system event data. Significant event data includes:
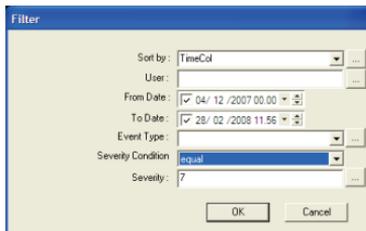
- System events (operator manipulation in system)
- System diagnostics (project startup, users logon/off, messages on networking or OPC connections and other)
- Communication Driver Diagnostics (Communication status, errors and other)
- Project Alarm Messages

The powerful Movicon Log manager is based on both ODBC, in order to obtain databases that are open and relational (ie. MS SQL Server, MS Access, etc.), and IMDB (InMemory DB) based on text and XML files.

The Historical Log window, like the Alarm Window, is a vector graphical object that can be dragged from the ToolBox and dropped on screen ready to configure. The user can then customize the object's

style through its properties as needed. There are various that can be configured including dynamic ones.

The configurability of this object will enhance the data log management to represent event data by type, date and priority with the ability to apply SQL queries dynamically. The historical log management can also recycle log files based on their size definable by different periods of time leaving Movicon the task to calculate the corresponding number of records. The DB archive system is totally configurable including the DSN type for the ODBC Manager. The Log window can be connected to any network station (Network Server) to display the event historical of one to several remote stations.

Sort by	When clicking on the Column description bar, Movicon will put into effect the relative order. The available columns are: 1. Event Text 2. Help 3. ID Description 4. Date/Time 5. User 6. Duration 7. Comment 8. Event Num
Refresh	The Refresh button determines a new access to Historical Log DB files for updating data on screen.
Filter	Permits custom filter queries for partial selections of the historical events displayed.
Print	Prints displayed historical data.

Data Loggers

The Data Logger resource records all types of process data with great efficiency and security. Thanks to the powerful Movicon ODBC Manager, the Data Logger objects are now more powerful and fast performing than ever to record tags in relational DBs in compliance with the ODBC standard. As an alternative, the historicals can also use the InMemory DB (IMDB) recording engine, an exclusive technology for DB recording on text or XML files, without using the ODBC. This is very useful for those systems that do not use ODBC or when data needs to be encrypted in the ownership format.

Data recording flow chart

The ODBC manager offers performance and security. Just the one ODBC connection is managed automatically for all Data Loggers with automatic restoring of connections for remote Server log files. The recording modalities are completely customizable, allowing the user to record on time, event, status change, time range, enablement and other.

The Data Logger is the basis for those features that represent recorded data graphically. These features include the Trends, Reports and Recipes. The database objects that are created with the Data Logger

The data format used in ODBC for default is the Microsoft SQL Server, but any other DB type can be used. When using Windows CE, the ODBC connections will be automatically converted to ADOCE connections by Movicon to support the Ms SQL Server in compact HMI systems based on Windows CE.

can be declared as "Templates" and saved in the Movicon Symbol libraries.

The use of the Data Logger makes it easier to manage DB files in standard formats that are normally problematic to manage in SCADA applications. Movicon uses an object-oriented data structure sustaining the property windows concept for easy configuration. All you need to do is drag the Tag with the mouse to the Data Logger (or reverse) in order to automatically add the associated column to the DB.

Native support to SQL language, Query, sort by and data filtering from the database permits easy extraction of the desired data RecordSets to manage them in project tags. Data logs are available in transparent mode to all other external applications (MES/ERP) which need to use them. The Data Logger is a simple but at the same time a powerful tool to have. The production data and plant performance log files can be managed by simply defining which tags must be recorded and with which mode. All the recording

modes, times, events can be set using the Properties Window. The powerful Movicon cache memory management consents up to millisecond precision recording. Logged data can be linked to the Movicon Trends or Reports, or any Database management that can be executed by using the ADO libraries (Database objects) with Basic Script functions.

Among the additional Movicon Data Logger features, you will find a log file management that recycles files according to set time frames (Movicon will automatically calculate the number of records to be reached before recycling), sample synchronization with system data (to get basic times on precise multiples), the option to record tags only with "good qualities" (adding this information on DB), the option to record performed sample averages.

Movicon also provides the user with "Grid" objects that available from ToolBox so that database contents can be displayed and/or modified on a Grid.

Recipes

The Movicon Recipe management is based on the Data Logger/Recipe resource and is completely object oriented, offering auto-configuration tools that make production recipe log creation extremely simple.

An "Add Recipe" command has been provided in the Logger Resource that can be used to create "Recipe" objects in the project along with columns and corresponding tags. Creating recipes is simple and immediate with just a few clicks and includes relational DB storage. The graphical recipe interface can be managed on screen using two distinct modes:

1. Graphic object "Recipe" from the toolbox
2. Wizard to create automatically a recipe's screen including all the related objects, fully customizable,

This interface can be completely customized like all other screens.

This only one of its kind Scada tool will help you to drastically reduce development times drastically when doing the complicated part of design engineering.

The Recipe Management is included as a standard feature for all licenses even though managed with Data Logger technology, which is an optional feature.

Tracing or Audit Trail

Movicon offers a powerful Tag Tracing management that records each data variation with maximum accuracy for any application, debugging or security need.

The Tracing feature is also defined as the Audit Trail in applications conforming to the FDA 21 CFR Part 11.

The Tracing manager has a completely configurable Tag Logging feature. Like all the Movicon historians, it is based on the ODBC or IMDB technologies (with encryption) to guarantee security and performance. Each single tag can be enabled with tracing feature by means of their properties. The trace permits millisecond precision recording of each tag value variation as well as any other relating information:

- Tag quality status
- Previous and current values
- Time (local and UCT), Milliseconds
- Active Users

- Action which determined variation (event)
- Reason for change (required from user)
- Alarm Acknowledgment

Like the Data Log, the archives recycle files until the preset time period has been reached.

Reports

The Reports are tools for displaying and printing stored process data for determined periods of time. Thanks to Movicon, you can easily get report printouts that guarantee openness and adaptability to specific end client needs. In addition to accessing stored data recorded by the Data Loggers, the Reports guarantee the calculation and visualization of totals, averages, variations according to the selected criteria that include time range, production batch, operators, shift, and other.

Movicon offers the **Report Designer** for free to enable users to create reports relating to the Movicon databases autonomously. The Report Designer is based on the .Net technology and can be called by using the predisposed commands which are shown in the Data Logger properties, the Historical Log and Trace windows.

Energy Consumption
Period: 2011/09/01 23.59.59 - 2011/12/31 23.59.59

The Report Designer tool will enable users to obtain professional reports within a few simple steps. The report files (.repx) can be completely customized (and by end users) and integrated within the project.

In addition to using the Report Designer to create reports, Movicon also supports the Crystal Report™ ver. 10.0. report engine as an optional feature. Reports edited with Crystal Report™ can be associated to Data Loggers by means of their properties, displayed and printed as an alternative to using the Report Designer.

The report pages can be displayed on screen and printed on command, event or at preset times.

When Movicon finds a file with the ".repx" extension in the Datalogger's "Report File" property (Historical Log or Trace window), the View and Print commands will perform the necessary operations using the Report Designer libraries; if the report files have "".rpt" extensions, Movicon will use the Crystal Report libraries.

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Movicon also supports the publication of data on web pages in table format.

Reports based on Crystal Report™ can be edited with the Crystal Report product, which can be purchased separately.

You will also find Internal Reports and Textual Reports that have been integrated and provided as additional easy-to- use solutions to manage reports.

The Internal Reports are built with project resources to enable users to edit the reports graphically and connect them to data logger fields and tables. Even though the Internal Reports are easier to use but are more limited than the Report Designer in what they can do, they however have the advantage of being integrated and supported by Windows CE.

Data can be displayed on screen in simple table formats, without necessarily connecting to report files (.RPT), by using the predisposed display objects from the ToolBox. Each report can be managed independently and associated the necessary storage parameters and printing modalities by means of using the Data Logger property window. Reports, Recipes and Data Loggers are also customizable by means of using the VBA scripts.

Trend and Data Analysis

The Movicon Trend graphically displays plant tag behaviour and those registered by the Data Logger. It is therefore a very effective tool to have for storing, printing and analyzing plant tag behaviour graphically (generally analog variables), such as temperatures, pressures, levels, load cells, chemical measures or any other magnitude converted into electric signals.

Movicon has Dynamic Trends and Historical Logs, which can be taken out as vector objects from the ToolBox or as Power Templates from the Symbol Library. The Movicon Trends are one of the most powerful and open tools currently available on the market. Like the other objects, they are completely configurable and can be animated as drawings and can be built as as part of a symbol or template and saved in the library. The Trends permit users to store data in ".CSV" format, interpreted by MsExcel™, or can be linked to the Data Logger's ODBC or IMDB recording engines.
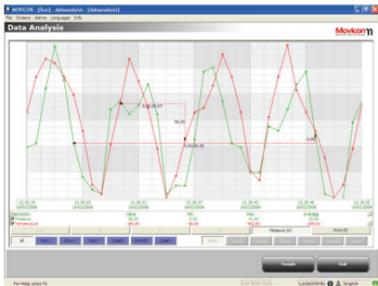
A Trend displaying a Data Analysis

The latest generation of Vectorical Trends consent graphical representations of behavior according to prefixed time ranges, minimum, maximum and average values of selected tags. They have a powerful range of graphical features that include the selection of tags to be associated to the trace, rotation, trace behavior, graphics type, and more. Purpose-built commands allow users to select data, time ranges, zooming operations, customize scales, drag the cursor and read numeric values of data pointed to.
There is no limit to the number of pens (values) that can be shown in the Trend window. All the Trend properties and pens can be changed in runtime by the user. Users are also provided with a VBA interface through which they can interact by using scripts to modify visualization, storage type and file management and in runtime as well. Users can also create custom Trend objects and save them as Templates in the Movicon libraries.

Data Analysis

The Data Analysis object originates from the Trend object and therefore shares most of the Trend's basic properties with a few extras. The Data Analysis is exclusively used to analyze stored data. This is done by using the various functions that have been especially designed to make this object a truly powerful data analyzer.
The Data Analysis allows the user to view stored data using different temporal scales. It is possible to select the following different time ranges:

- minute
- hour
- day
- month
- year

Comparisons can be made between different analyzed data by inserting a second curve for each pen to display data from the same time range (minute, hour, etc) but relating to an earlier or later period.

Security: Users and Passwords

Movicon™ completely satisfies the most stringent security requirements, by offering a complete and powerful user access (Log On) and password management, with full support to the FDA 21 CFR Part11 specifications. The Movicon platform completely complies with these specifications to allow users to create FDA ready applications with great ease without reverting to the operating system functionalities. The Movicon security management can be defined with an unlimited number of users with command access permitted by hierarchy (1024 levels) and by area (16 non hierarchy access areas). In this case, security is both pyramid type (hierarchy level) and by zone independently from which level (areas).

Block Chart of Security Architecture

Movicon™ offers the option to fully share the operating system domain or Windows™ Win32/64 server users in the application project: when activating the password management, the project will acknowledge users inserted and activated in the installed operating system domain or server domain as admissible users. Movicon accepts mixed configurations of users inserted in the project list and users from Win32/64 domains. Timed Auto-LogOff, passwords with expiry dates, password change forced at user Log On, VBA scripts automatically executable on Log On/Log Off events of each user are

among the properties assignable to users. These properties also include protection activation that complies with 21 CFR Part11 to simplify the creation of FDA ready projects. Along with all the other requisites, Movicon automatically supports **Audit Trail** recordings as well (Trace DB with operator comments).
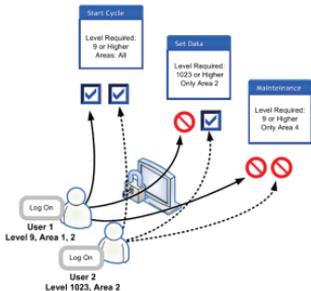
User access authentication with 1024 levels and 16 areas.

All historical log files can be protected against any unauthorized manipulation thanks to the possibility to encrypt, in 128 bit figures, the IMDB log files (DB XML). Access can also be protected by using specific tools such as the Server™, Oracle™ or other.

The Movicon password management does not require any programming, and can be enabled or disabled by the programmer as pleased.

Users can also receive profiles relating to event notifications, indicating (per group or per user) contact and telephone numbers for voice calls, SMS, E-mails, Fax etc.

Movicon has been explicitly designed to support the FDA 21 CFR Part 11 specifications.

Operating System Access

The Movicon security management has been greatly improved custom access to the Windows operating system functions. Movicon now provides project properties for those who wish to:

- Disable the desktop
- Disable the Task Bar or Start Button only
- Disable the Task Manager
- Disable the Ctrl+Alt+Del keys
- Disable (Alt+Tab, Alt + Esc) switching keys
- Disable and hide the system clock

It can be truly said that Movicon is the ultimate frontier in security and extreme 21 CFR Part 11-ready project creation simplicity.

Warning! As from Windows 7/8 Microsoft has introduced a security feature that impedes the "Ctrl+Alt+Del" combination keys and the Windows "Start" button from being disabled.

Project Protection

As already mentioned at the beginning, Movicon projects are completely based on XML files and therefore are open. In order to guarantee security, projects provide an property option to encrypt project files and/or project resource files. When activating this option the project file will automatically be encrypted with 128 bit algorithms to keep it safe from any unauthorized access. This operation is also reversible.

*Log On window supports touch screen use*

Logic and Scripts

In SCADA platform logic and scripts are used to perform calculations and functions, as well as to customize whatever else is needed in the application. To make this possible, Movicon provides users with three programming languages: Script VBA or VB.Net, PLC Logic and Synapses. By using these programming languages users will be able to build functional logic in their project safeguarding their know-how.

VBA and VB.Net Script

Movicon incorporates a VBA comp. Engine (Visual Basic for Application™) which consents to programming VBA or VB.Net script code by integrating functions and Dialog Boxes in a way most similar to Visual Basic™. This powerful and popular programming environment is greatly appreciated by those developers who already know and use it to open new and boundless

horizons in the world of supervision or process control applications.
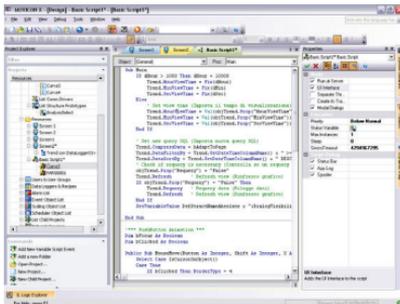
Movicon integrates the VBA language with support to multithreading, safe mode and parameterization. The debug and thread priority functions are also among the many tools included.

The VBA language integrated in Movicon is particularly powerful. The VBA Scripts support Multithreading for executing synchronous or asynchronous parallel tasks, OLE and OCX automation for interfacing to other applications, DDE for exchanging dynamic data, ADO technology for direct access to databases, Windows API for operating system interaction.

In addition, the Movicon technology permits users to associate VBA scripts (events, properties, methods) to graphical symbols, alarms, trends and other resources with the possibility to keep and reuse code associated to symbols that are saved in the library and used afterwards in other projects. Symbols customized with VBA scripts can become "Power Templates".

The modality in which VBA scripts can exploit public functions and code has been renewed and enhanced so that each script can refer to the code of another script using the appropriate parameter commands and thus permitting code sharing.

Any automation application can be created at a high level by using these functions in a compatible VBA™ standard environment within Movicon.

The Movicon VBA engine, in addition to completely supporting all the VBA™ functions, has its own functions (API) for system interaction.

Support to the VB.Net syntax also permits .Net object and component management.

The VBA™ syntax is also supported in WinCE platforms (Progea exclusivity). However the instruction set is inevitably more limited, as indicated in the guide referring to languages.

IL Logic

Movicon has a Logic Interpreter for managing system and plant variable combinations which is similar to a normal PLC, with Simatic® S5/S7 type instruction list languages (AWL or IL). The Task, called IL Logic, has been given a powerful set of logic, compare, arithmetic and mathematic instructions as well as graphics for combinatory project variable management. The IL Logic is run by Movicon in background in cyclic mode just like a normal PLC, and with scheduled logic times that can be set in milliseconds.

The Movicon IL Logic is very useful for programming logic in SCADA using the PLC philosophy that does not require user to have VBA language know-how. The Win32 operating systems are not deterministic, while Window CE operating systems are.

The IL Logic can be used independently from any other resource (and together with VBA scripts) for diverse scopes, such as calculations, formulae, screen page activation upon system request, providing the PLC with information (e.g. current time, page displayed, key pressed, etc.). It can also return results of formulae or mathematical calculations performed on logic variables to the PLC used for running the plant when not equipped to do so itself.

Synapse Language

The Synapse language is a new way of programming which Movicon has integrated and applies as a visual language using functional blocks exploiting the VBA basic features.

According to this philosophy, the user is provided with a library of pre-built function blocks that can be used screen by applying the symbol graphics editing concepts. This library can expanded with custom function blocks that can be created by simply editing symbols and assigning them with different functions.

The functional blocks are connected to each other with "connectors" using the normal FDB methods (Functional Block Diagram).Each block also has its own properties, methods and events for further enhancement of use.

The Synapse is an extremely powerful graphical and visual language tool which allows symbols to be customized and used as functional blocks. It is extremely easy to use when editing graphics.

The advantages you get by editing this language graphically are:

- Great simplicity of use when function block planning
- Great simplicity using sequential logic
- Predisposition for logic batch sequences
- Possibility to modify functions on-line

The Synapse concept is truly a new and simpler way of programming that is powerful and flexible.

Speech Recognition

Movicon provides a very handy feature which is a function that recognizes spoken texts **associated to the project's Shortcuts resource** for activating commands vocally. In order to use the speech recognition function for activating commands you will need to first check whether your PC has been equipped with a microphone for giving vocal commands. Your PC will also need an audio card to allow the system to enounce requests and confirm messages.

Only the "Microsoft English Recognizer v5.1" speech recognition engine is currently available. The Speech Recognition function cannot be used with the Italian language.

You will need to verify that you have Windows SAP 5.1 and that it is configured correctly. This can be done by going to 'Speech' found on the control panel. We strongly advice you follow the guidelines on microphone configurations procedures and speech profile regulations.

Redundancy

Movicon supports the Redundancy feature, commonly known as "Hot Backup", in complete automatic and transparent mode for critical configurations where data security and integrity is absolutely essential. The Primary Server station (Master) is connected to the Secondary Server (Slave) in Ethernet network. If the Primary Server crashes, the Secondary will automatically go into action straight away from standby mode to communicate and manage the plant and store data according to the preset Master modes. When the Master returns into action, it will automatically regain plant control by synchronizing its historical logs with those of the Slave's and updating on alarm situations. The synchronism and synchronous functionality in Movicon's redundancy management has been further enhanced and is supported in both the Primary and Secondary Servers.
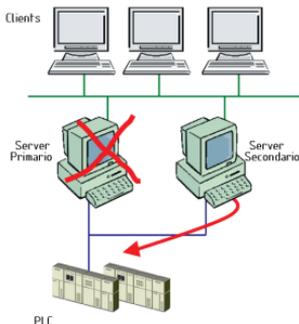
Simple redundancy architecture
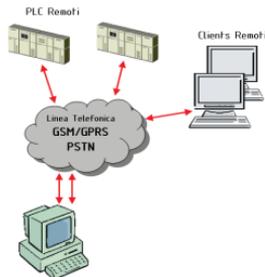
Remote control and Access

Remote data access, as previously described, has been a focal point for improvement and plays a major role in Movicon. Years of experience in the field of remote control have led to the full integration of a complete set of tools with innovative modes of use to make connectivity transparent and automatic in Movicon.

Remote access to PLCs (serial connections) has been integrated within the communication drivers directly with TAPI

properties to define the connection parameters to devices. This innovative feature to automatically connect nodes functions independently from the number of devices that can be connected to simultaneously (with the same driver or different drivers) and the modem port can also be shared for other usages.

The remote access between one PC and another can easily and automatically support both the networking (RAS Stations) and OPC XML DA technologies.

Remote control operativity can be enhanced even further by using the MovBridge product (GSM Gateway based on OPC and SMS) together with Movicon.

An example of remote control architecture

System Openness and API

Progea's philosophy of greater openness is guaranteed with Movicon. Totally based on the XML technology, Movicon projects or part of them can be edited with other Editors or with external macro functions. For instance, OEM producers can realize their own configuration environment of XML projects for creating vertical applications (ie. for their clients), without forfeiting future integration of other Movicon functionalities. Project realtime variables can also be accessed (in read only) using XML.

Thanks to the VBA technology, any one of the platform functions can be completely customized using scripts. The VBA language, guaranteed true multithreading in Movicon, offers hundreds of supplementary methods and properties in respect to the previous and already complete versions. By using the VBA Scripts users will be able to access operating systems and then text files and databases (ADO), use external libraries (DLL) and third party objects (ActiveX). The ActiveX technology can also be managed graphically within Movicon screens. An extra function has been included to open screens "Safe Mode". This will permit Movicon to open screens in other processes without jeopardizing the entire application with

eventual instability caused by inserted ActiveX controls.

The OPC technology is also another guarantee of openness. When having an OPC Client and OPC Server platform, you can rest assured that your automation has connectivity with other applications and/or devices. The new OPC XML DA technology extends these concepts towards web-based connectivity and openness.

Movicon also supports ODBC real-time connectivity and is the only one to do so. Thanks to this feature, project Tags can be remapped in external relational databases (e.g. SQL Server, Oracle), in read only, write only or read-write. This powerful feature is used in the Movicon Tag properties to offer the possibility to divulge project information to business information systems or any other application with transparency.

Furthermore, Movicon is able to register in the Windows ROT (Running Object Table) every time a new project is run (only the first time it is run). In this way the Movicon basic script interface will be made available to any script supporting OLE Automation (such as Visual Basic using the GetObject function). This will allow access to the Movicon methods and basic script properties and therefore access to project tags in order to read/write them.

On-line Debugger

The Debugger tools are essential to any software platform for effective time reduction when setting and starting up plant systems. Movicon is renowned for doing this and even more so by offering totally revamped Debug tools that have been enhanced with the Movicon 11.5 version. Projects can now be traced and monitored in their entirety by using configurable Log files.

Attention: The Movicon Debugger is only active when the project is started up in runtime from Design Mode. All the Debug functions are disabled when Movicon is started up directly in runtime. The debugger can also be activated to start up automatically by using the procedures described in the product's technical documentation.

On-line Project Debugging

The integrated Movicon Debugger permits users to view the status of Tag logic in different modes in realtime by using the

Watch Window along with other real-time information on the project's running performance. The Debugger can also be used for forcing Tag values in order to run simulations. It also provides all the other real-time information about the project such as which OPC or TCP/UDP/HTTP connections are active, active user, number of active alarms, historical log "cache memory' status, spooler status and more.
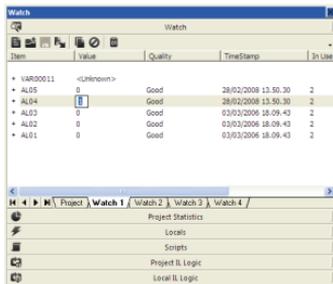
Remote Debug

The exclusive Movicon Debugger technology permits users to monitor projects by remote control using ethernet network. Thanks to the "Attach to Project" feature, Movicon can run a complete project debug process by remote. This feature is indispensable for those systems which do not consent

debugging locally (i.e. WinCE or WIN embedded panels).

Project Statistics

The debugger also provides statistics graphically by displaying the different system resources used by the various project components. This will allow users to rapidly analyze resource consumptions, assess performances and make improvements when needed.

Logic Debugging

The debugger displays logic programs (IL Logic or VBA Script), so that users can view the variable status and results in real-time. Users can also verify which logic is being processed and analyze scansion times as well as manage Break Points and run Step by Step VBA logic or Synapse logic.

Debugging and Forcing Tags

Each Tag is provided with a property option that enables the tracing of all information relating to the tag's quality status and thus the ability to manage trace and log files on tag statuses. The tracing feature can also record all information relating to Tag status changes, with maximum millesecond time-stamping precision, along with user name, resource responsible for status change and its quality plus other helpful information.

Networking Debug

The Network Services allow custom log files to be managed for tracing and analyzing network packet transitions. This will allow a complete monitoring of the whole network system in order to analyze behaviors and make necessary performance improvements.

Movicon™ CE

Scalability is one of the main advantages you get from deploying Movicon. This means that Movicon can run on both desktop (Personal Computer) and on embedded systems based on Windows 7/8/10 Embedded and Windows CE. This in fact is a great advantage considering that today all HMI operator terminals are based on PC architecture with the Windows CE operating system and equates to:

- Major potentiality in HMI systems, cost reductions for adopting standard solutions
- Total integration of the HMI system in network with all enterprise-wide levels
- Interchangeability of hardware while maintaining the same software
- Programming cost reductions thanks to the universal deployment of an all-rolled-into-one platform, with consequent cost reductions in learning and updating.

The same Movicon project can in fact work both in Win32 Personal Computers and WinCE embedded systems (except for a few functions which are not available in the CE and HMI environments).

Movicon™ CE License

Devices using WinCE require a license in the form of an unlocking code Softkey. There are no hardware keys involved. In the absence of this license, projects will be run in Demo mode only and not in runtime mode in WinCE.

The Movicon CE is purchased in the form of a Serial Number. This number grants the user access rights to the Progea website in order to obtain their SoftKey containing the unlocking code to enter in the device. The user can access the site at any given time, 24/24, to automatically generate the softkey in function with their site code.

Movicon CE

Attention: Movicon CE runtime is often pre-installed inside devices for industrial automation. Therefore check to see if you already have an Movicon CE license included with your device.

When you purchase a softkey follow the procedures below to unlock the CE:

- Once purchasing the license (or a CE device with a license inside ready for activation), you will receive a serial number that will get you access to the Progea website (www.progea.com or http://support.progea.com/softkey/)

- Launch Movicon on the CE device. The window for entering the license, or for starting up in demo mode, will display. Note down the Site Code displayed in that window.

- Access the Progea Website with your access code and then follow the instructions to insert the Site Code with

which the Softkey will automatically be generated.

- Note down the Softkey license and insert it in the editbox which appears at the Movicon startup to install and activate it.

- Many devices request users to save the WinCE Registry in order to save data in permanent memory. In any case, the license is bound to the device and will not change when reinstalled.

IMPORTANT: The Movicon CE license comes in two versions (Lite and Standard). Please check the Movicon CE license limitations in the technical reference documentation before use.

IMPORTANT: IN ADDITION TO CHECKING THE LICENSE TYPE USED AND ITS LIMITATIONS, YOU SHOULD ALSO CHECK THOSE OF THE THE HARDWARE DEVICE WHERE LICENSE IS TO BE USED. THE FUNCTION LIMITATIONS OF THE MOVICON PRODUCT

LICENSE MAY NOT BE THE SAME AS THOSE IMPOSED BY THE INTENTED HARDWARE DEVICE.

Run in Demo mode in WinCE

At project startup, Movicon CE will request you to enter the license number or click the Demo Mode button. When clicking the Demo Mode button the project will run in Demo mode. The project runs with a limit of 120 minutes in this mode. Messages are traced in the project log, at regular time intervals to indicate how much time is left before project stops running. The available options are:

- Screens = unlimited
- Alarms and Messages = unlimited
- Byte I/O = 0
- Driver = 1
- Web Client users = 1
- All available options

Movicon CE Installation

If a "MS ActiveSync" (for Windows XP) or "Windows Mobile Device Center" (for Windows 7 systems) is detected while installing Movicon on a PC with Win32, the

"MovCESetup" folder will automatically be created inside the Movicon installation folder. Inside the "MovCESetup" folder you will find the ".cab" files for installing Movicon, the Communication Drivers, ADO and SQL Mobile Servers in WinCE devices. In addition, a "Start-All Programs-Movicon11-MovCE" group of connections will allow you to install Movicon with all the components necessary to WinCE Devices.

The "MS ActiveSync" tool is only available for Windows XP and not for Windows 7. As a replacement, The Vista Business has been preinstalled with a "SyncCenter" but you will also need to install the "Windows Mobile Device Center" (the latest 6.1 version) to enable the Movicon setup to function correctly. This center is available on the Movicon CD for the following versions:

- Windows 7™ (all version except for "Home Basic")
- Windows Server 2008

If "MS ActiveSync" or "Windows Mobile Device Center" is not installed beforehand, the "MovCESetup" folder will not be created during the Movicon standard setup procedures. Therefore you will have to select "Custom" mode in order to complete the setup for the first time. If

Movicon has already been installed, you will have to repeat the setup by selecting the "Modify" mode and enabling the "Movicon-Movicon Development-MovCE Setup" item along with the sub features to create the "MovCESetup" folder containing the ".cab" files for installing Movicon and the relevant components for WinCE. However this procedure does not create links to the Windows Start menu which must be done by copying the right ".cab" files to the CE device/s desired and executing them manually in order to complete the installation.

The Movicon installer identifies which type of processor is being used by the device before automatically installing the most suitable Movicon CE executable.

The Movicon CE RunTime engine can also be installed on the device manually.

Installing Movicon CE using MS ActiveSync or Windows Mobile Device Center

In order to install the runtime module automatically on the WinCE device in the most easiest way possible, make sure that the "MovCE" connection group is ready for use in the Windows "Start" menu, as described above, and that a connection has been setup between the WinCE (target) device and the PC (desktop)

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beforehand by using the "MS ActiveSync" or "Windows Mobile Device Center".

Once this is done you can go ahead with installing the components you need from the "Start-All Programs-Movicon11-MovCE" menu. In this case the "MS ActiveSync" or "Windows Mobile Device Center" will automatically recognize the processor type onboard the "target" and upload the ".cab" file needed to perform the installation correctly. Once the ".cab" file has been uploaded, it will be immediately executed to provide the setup of the MoviconCE RunTime modal or the selected components. All operations are performed automatically leaving the user to select where the packet is to be installed: in the default folder for applications or in another folder. It is advised to avoid using the default folder in SSDK devices because this device does not store its contents in memory when closed. The following items can be selected from the "MovCE Start Menu":

- **MovCE PocketPC Setup**: the Movicon CE runtime module is installed for Pocket PC devices
- **MovCE SSDK Setup**: the Runtime module is installed for Movicon CE for SSDK devices

- **Optional Tools**: the ADOCE and SQL Server components are installed for Pocket PC or SSDK devices according to the tool selected.

The Communication Drivers must be inserted in the "Drivers" folder within the MoviconCE installation folder. In cases where the Driver Setups should create different folders all together in the device, you will need to copy the driver's dll to the "Drivers" folder manually (if it does not exist you will have to create it):

..\Movicon CE\Drivers\

The library of the ADOCE and SQL Server Mobile components must be copied to the MoviconCE installation folder. By doing this, these files will be copied automatically to the "Windows" folder at the Movicon Startup, being necessary for them to work correctly. If a different folder is created when installing components, you will have to manually copy the components files to the Movicon CE installation folder.

Communication Drivers

The Communication Drivers do not need any particular installation procedure.

Simply copy the desired ".dll" files to the Movicon CE 'Drivers' folder in the WinCE device. These files are found in the "MovCESetup" sub-folders on the PC desktop:

- PocketPC -> for Pocket PC devices
- StandardSDK\ARMV4I -> for WinCE panels with ARMV4I processor types
- StandardSDK\x86 -> for WinCE panels with x86 processor types.

When using the Upload/Download Projects function to transfer the project to a CE device, the TCP plugin and the MSActiveSync will run a check to see if there are any drivers used in the project. If no driver is detected, the drivers will be installed in the WinCE device.

Installing MovCE RunTime module manually

If 'ActiveSync has not been implemented on the "target" device by its builders, or the "MS ActiveSync" or "Windows Mobile Device Center" has not been implemented on the "desktop" PC, it will not be possible to connect to the device by means of using the ActiveSync. Therefore you will have to manually upload the ".cab" files to the device by following these procedures:

1. Establish a connection between the "target" and the "desktop". This connection can be either network or serial type.
2. Determine processor type aboard the "target"
3. On the desktop select the file with the ".CAB" extension specified for that processor from the Movicon CE installation directory, "Program Files\Progea\Movicon11.5\MovCESetup") and copy it to the "target".
4. Double click on the CAB file on the "target" to run it. If an error should occur, open a DOS session and digit the "\>WCELOAD FileName.CAB".

This procedure will start up the Movicon CE Runtime module installation. The CAB file will be cancelled automatically when the installation procedure terminates. The above procedures should then be repeated for the ".cab" files of the ADOCE libraries and SQL Server Mobile when needed.   This will require you to copy the ADOCE and

SQL Server Mobile files to the Movicon CE installation folder.

> **Contrary to the PocketPC devices, only a few folders are buffered and not all of the memory in SSDK devices (Touch Panel or similar). The information which is recorded in volatile memory is therefore lost when device is restarted. It is therefore advised to execute the "RegSave" command after MovCE has been installed, otherwise the runtime module may not work correctly.**

Movicon™CE Runtime Features

Movicon CE is the compact Movicon runtime version, especially designed for supporting Microsoft operating systems for embedded environments, such as Windows CE (WinCE 5.0, WinCE 6.0, Win7EC). Thanks to Movicon CE you can supervise your machines using HMI terminals connected in net to increase the potentiality of your systems by using just the one all-in-one software enterprise-wide. Ultimately by having just the one all-in-one software in your company will allow

you to reduce costs on ownership solutions.

Movicon CE runtime supports:

- All the powerful Movicon vector graphics making HMI user interface just like that of a Scada interface
- All of the powerful Movicon alarm management
- Event Notification via SMS or E-mail
- Alarm Historical Log files in XML DB (light and performing) or in SQL Server Mobile Relational DB. Movicon actually converts the ODBC connections to ADO CE connections.
- Data Loggers and Recipes as with desktop, with files in XML DB or Relational DB
- Vectorial Trends with log files in XML DB or relational
- Networking with all the powerful Movicon functionalities
- OPC DA Client
- OPC UA Client
- **VBA Language** (Visual Basic for Applications and not VB Script…). Exclusive Movicon CE technology
- Event Schedulers and Weekly Timetable Plans
- IP camera management
- "On-Line" change language with support to Asian languages
- Modem management for remote access or teleservices in PLC
- Web Client

Web Server for WinCE

Thanks to the Web Client technology, the Movicon CE projects also support functions to access the system via the web. This will allow users to connect to machines by remote control to access all the project's functions in bi-directional and multiuser modes in complete safety. Thanks to the Movicon technology you will also be able to access your machines via web by using the Movicon CE multiplatform java technology based functions. In addition the J2ME technology is also supported and Apps are available for Android and iOS to enable you to access your machine with your smartphone or tablet device.

Movicon™ Web Client

Movicon™ Web Client is the technology that consents access to Movicon applications (Server) by remote control by using a normal Internet Browser, PDA, Smartphone or mobile phone.

The Movicon Web Client technology is designed on innovative technology with high performance and advanced functionality guaranteed. The Web Client technology is based on Applet and Midlet Java, with apps for iOS and Android with very efficient network communications. Data transport performs with real web-based technology such as the Web Services and SOAP technology in XML.
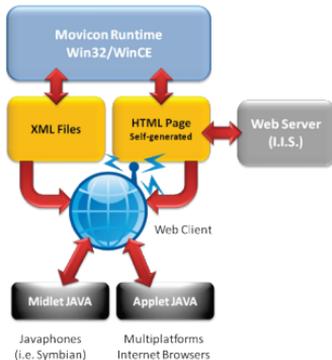
An example of Web Client architecture.

Thanks to this technology, the Web Client version is now capable of accessing the plant from any client station based on Microsoft Win 32/64 or WinCE operating systems and other systems, such as Linux, Apple, Android, Symbian, as well. Furthermore the Web Client is available in app versions designed for smartphones and Tablets to allow you to access your plant as Web Client using your mobile device.

These extremely innovative features make the Movicon Web Client technology the most advanced technological tool currently

available in today's world for accessing your plant in remote or via the web.

Thin Client Architecture

The Web Client applet consents server access using any internet browser, with any platform thanks to the Java feature. The Web Client is extremely compact and light and therefore a true Thin Client that supports mobile devices such as iPhone or Androids or the most popular mobile phones with J2ME support (JavaPhones or SmartPhones) as possible clients.

The Web Client Enterprise object permits bidirectional communication with the Server station and consents plant visualization, monitoring and control by activating the desired commands. Users (with preset access levels) can view and interact with server screens using an access menu, display and acknowledge alarms, monitor variable statuses, view historical logs and Data Loggers. Multi-user access is safe because each user connection is completely autonomous with regards to the other users and server. Great efforts have been made to improve performances in the SVG image raster technology in screens used by the server to send only those parts of images that have changed.
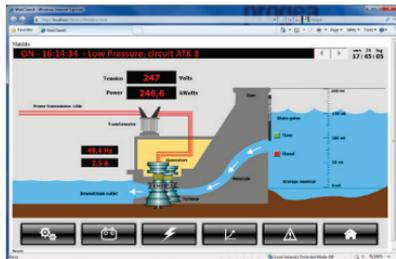
Plant visualization using an internet browser.

Supported Systems

The Movicon Web Client is based on the Java technology. Thanks to this technology the Java applet can be run on any platform or operating system supporting Java (Java Virtual Machine).

When making the plant accessible via Web, you need to consider which Clients can be given access and what operations the client users can be allowed to perform.

The list of operating systems below is only a reference to the products tested out directly by Progea. There are many other devices on the market with operating systems that support Java (2.0) correctly with compatibility tested and verified by the manufactures or clients of that device.

Clients in PC (J2SE, Java) architecture

- Windows 8, 7 (Win32/64)
- WinCE 5.0, 6.0, 7EC (depending on JVM)
- Linux
- Unix

Clients in Mobile phone architecture:

- Symbian
- JavaPhones
- Blackberry RIM
- Android
- Apple iOS (iPhone/ iPad)

For further information on the device you are using or on testing, please contact the Progea offices or your local dealer.

Features

Movicon™ Web Client offers the possibility to access plant data using the Internet/Intranet architectures. The advantages you get from using the Movicon™ Web Client are:

- Project information distribution and access to data in web-enabled architecture using any browser with any operating system supporting the Java technology, as well as the J2ME version to support JavaPhone technology.
- Web pages created automatically on Server with just one click.

- Project screen navigation as predefined on Server, with possible navigation restrictions on web side.
- No additional installation or configuration needed on Client or Server.
- Enhanced performances, transparent support to project functions and commands with normal browser use.
- Data management security
- Notifications on exception only
- Communications based on Web Services.
- Entirely Java-based technology.
- Supports J2SE Applet and J2ME Midlet.
- Supports Multiplatform on Client side (Linux, Windows™, Palm, Symbian, Apple, Android).
- Supports Windows 32/64 or Windows CE on Server side
- Access to server by mobile phone as plant client as well.
- Complete access from Web side to historicals recorded by Server.
- Supports powerful functions such as schedulers and IP camera.

This new technology offers a great number of advantages for any type of plant with distributed architecture, whether using internet or normal networks (intranet) or both.

Mobile Clients

The exclusive Movicon technology offers the option to use mobile phones to access plants as web clients. This technology is the only one of its kind in the world today capable of doing this by using a midlet and an app version of the Movicon Web Client developed by Progea.   Thanks to this exclusive technology, the user can access the server with their own mobile phone using the normal networks (GSM/GPRS, UMTS). In addition to displaying screens on the phone, the Web Client app also offers the main services for accessing information on the server that are far more easier to use than those of a normal Web Client.

Web Client License Policy

One of the advantages of using the Web Client technology is that there is no physical license required on the Client. This is because the license residing on the server is referred to for **the number of Client users connected at the same time.**

When you purchase a license for Movicon (usually as a Server license), you can also purchase the Web Client feature with the runtime license by specifying the number of users you wish to allow simultaneous connection to the server (the number of Users should comply with the official price list). **The maximum number of Web users set by Progea is a 100:** this means that 100 users can connect to the server at the same time. This is an imposed sales limit that requires you to have a server with a powerful calculation capacity to manage 100 connected users at the same time that in normal circumstances is very rare.

Nevertheless this limit can be changed on request if needed.

Server licenses refer to "Contemporary Users". For example, if a Movicon runtime license is enabled with no. 1 Web Client User, this means that any number of users are allowed plant access but only one at a time, can actually access.

Please note that the server automatically disconnects a Web Client user when a pre-settable inactivity time has elapsed to allow access to another user waiting to connect.

The Movicon CE runtime license has a maximum limit of two users being the limited capacity of servers based on Windows CE.

Customer Support and Services

Product related customer support services are fundamental to any industrial software platform. Without the proper assistance and technical support even the most advanced product may cause financial loss and cost for damages caused by user misuse. Progea, who produce Movicon, go out their way to see that their customers get the best support possible by providing a full range of services to guarantee your company maximum productivity. Customers can rest assured knowing that the services they receive are of top quality based on the fact that Progea is the company that actually designs and produces the Movicon software. The expertise and professional competence of the Progea Technical Team can provide solutions to any programmer or end user needs. Progea offers a unique partnership working side by side with their customers in confronting and solving any modern automation problem.

These are just some of the services Progea provides:

- Tailor-made courses and Training
- Customer Care
- Personalized Solutions
- Hot Line and telephone assistance
- International Support
- Web tools such as the KnowledgeBase, Bugbase, Web Forum, and others
- "Solution Providers" program
- Research and Developement Lab.
- UNI-EN ISO 9001:2008 certified system quality

International Presence

The Movicon™ software product has been on the market since 1992 and is one of the most well-known and established Scada/HMI products at an international level. It is sold, distributed and supported in over 30 counties worldwide.

Progea is directly present in:

- Italy : Progea Srl
- Switzerland: Progea International SA
- Germany: Progea Deutschand GmbH
- USA: Progea USA LLC

Progea also has a vast network of international distributors.

Movicon Distributors are present in:

- Europe (All leading countries)
- North America
- South America
- China and South-East Asia
- Australia

Visit the Progea website for an updated list of distributers: http://www.progea.com

System Requirements:

Product	Operating System	HW Requirement
Editor	Windows 7 Windows 8 Windows 10 Windows 2003 Server Windows 2008 Server	Minimum: Core i3 2 GHz 1 Gb RAM. Recommended: Core i7 2 Gb RAM o sup
Runtime Desktop	Windows 7 or 7ES Windows 8 or Windows 8 Embedded Windows 10 Windows 2003 or 2008 Server Windows Terminal Server Windows Tablet Edition	Minimum: Celeron 1,6 GHz, 512 Mb RAM. Recommended: Pentium IV 3 GHz, 1 Gb RAM at least. Requisites depend on applied project size.
Runtime CE	Windows CE* 5.0 Windows CE 6.0 Windows 7EC	Minimum Cpu 600 MHz, 32 Mb RAM, 32 MB Flash. Recommended: Cpu Atom 1Mhz 64 Mb RAM. Requisites depend on applied project size. A list of supported processors can be found at www.progea.com
Client Web	All operating systems that support Java Virtual Machine (JVM) All mobile devises that support iOS APP for iPhone/iPad Android 4.x and 5.x devices RIM Blackberry	Minimum: 400 Mhz Cpu. Requisites depend on the platform being used and displayed screen sizes.

Terminology

XML	Extensible Markup Language	Meta Language in text format, simple and flexible to use, defined by the SGML (ISO 8879) standard . Originally designed for evolving HTML potentiality, it is today used as a strategical tool for exchanging data not just over the web but also between web applications everywhere, thanks to its simple Tag structure and multiplatform.
OPC	OLE for Process Control	OPC is a communication standard for multiple software application connectivity defined by the OPC Foundation consortium. Movicon supports OPC UA, OPC DA and OPC XML DA
ODBC	Open Data Base Connectivity	Microsoft technology by means of which applications can access or record data in relational Databases. The ODBC drivers are included within the Microsoft operating systems and are also available from DB producers or third parties.
SOA	Service Oriented Application	This is an architecture composed of services and user services which communicate through a series of specified interfaces, which are totally independent from each other, using the Web Services.
SOAP	Simple Object Access Protocol	This is considered the protocol for implementing Web Services of the future. It is based on XML and consents applications to communicate with each other independently from the hardware, software and programming languages used for developing them. SOAP, which is used and supported by the main software.

		producers (Microsoft, Sun, IBM), is the only firewall friendly protocol and excels all connectivity limits without barring security.
VBA	Visual Basic for Application	This is the most used language in the world. It uses Visual Basic syntax to manage script executions in applications. VBA™ is a Microsoft product, while the VBA language guarantees 100% compatibility.
Web Services		These are Software components accessible through the normal protocols used in Internet (HTTP, XML, SMTP, and other...). The advantages of using Web Services include the use of a basic set of protocols with widespread availability to permit interoperability between different platforms while still having the option to use the more advanced protocols specialized to perform specific tasks. XML and SOAP are the Web Services' basics.
SMPP	Short Message Peer to Peer	This is a message protocol used as an industrial standard for simplifying application integration with wireless networks such as GSM, TDMA, CDMA and PDC. It is widely used in the telecommunication industry and by mobile devices.

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INDUSTRIAL AUTOMATION SOFTWARE

System Requirements:

Product	Operating System	HW Requirement
Editor	Windows 7 Windows 8 Windows 10 Windows 2003 Server Windows 2008 Server	Minimum: Core i3 2 GHz 1 Gb RAM. Recommended: Core i7 2 Gb RAM o sup
Runtime Desktop	Windows 7 or 7ES Windows 8 or Windows 8 Embedded Windows 10 Windows 2003 or 2008 Server Windows Terminal Server Windows Tablet Edition	Minimum: Celeron 1,6 GHz, 512 Mb RAM. Recommended: Pentium IV 3 GHz, 1 Gb RAM at least. Requisites depend on applied project size.
Runtime CE	Windows CE* 5.0 Windows CE 6.0 Windows 7EC	Minimum: Cpu 600 MHz, 32 Mb RAM, 32 MB Flash. Recommended: Cpu Atom 1Mhz 64 Mb RAM. Requisites depend on applied project size. A list of supported processors can be found at www.progea.com
Client Web	All operating systems that support Java Virtual Machine (JVM) All mobile devises that support iOS APP for iPhone/iPad Android 4.x and 5.x devices RIM Blackberry	Minimum: 400 Mhz Cpu. Requisites depend on the platform being used and displayed screen sizes.

Glossary

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http://www.progea.com