



December 2012

Features and Improvements V3.5 SP2

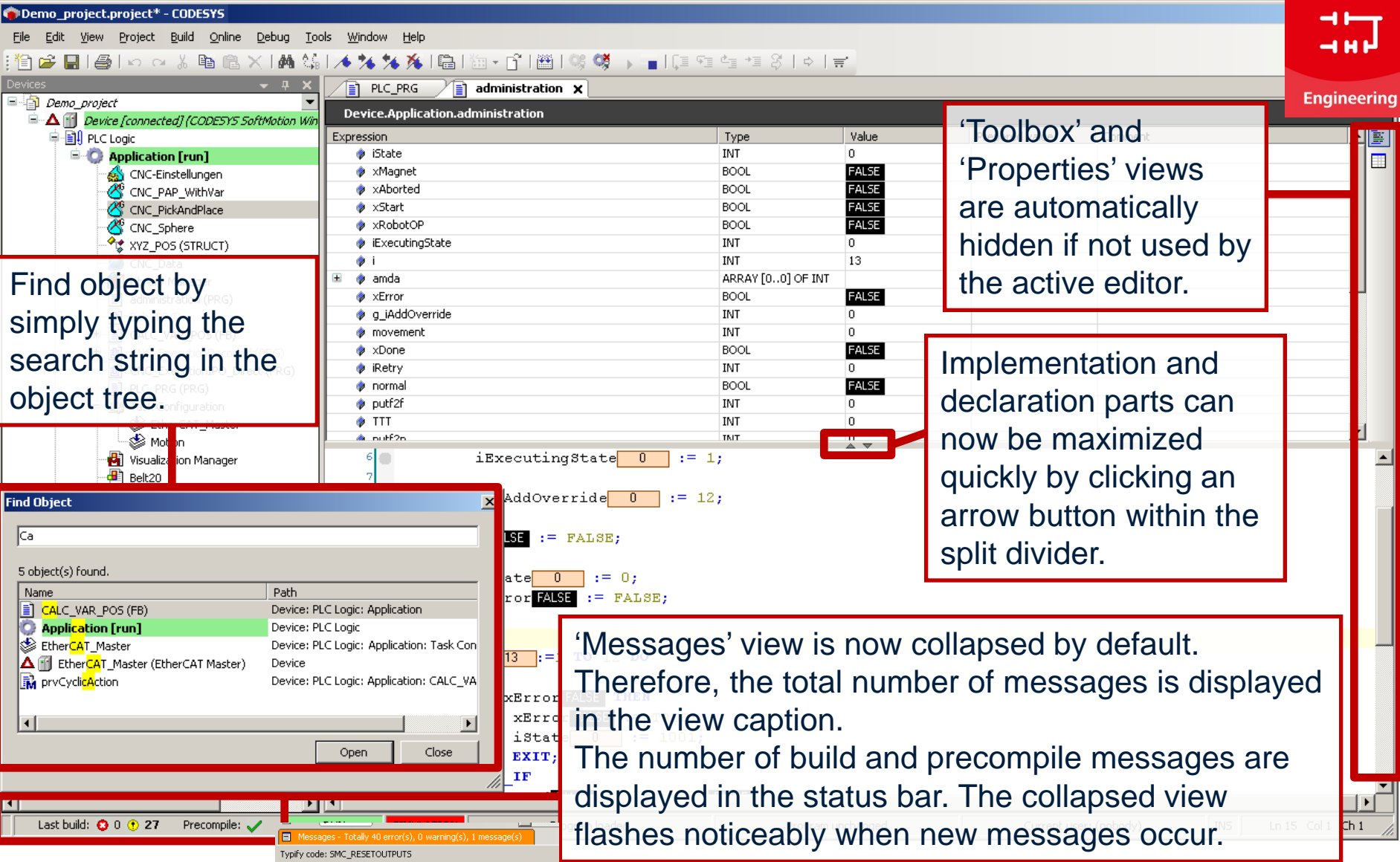


Agenda

- 1** Engineering Engineering
- 2** Visualization Visualization
- 3** Motion+CNC Motion + CNC



- Overview Usability Improvements
 - Improved usage of available screen space
 - Various window handling improvements
 - Improvements in ST editor
 - Improvements in graphical editors

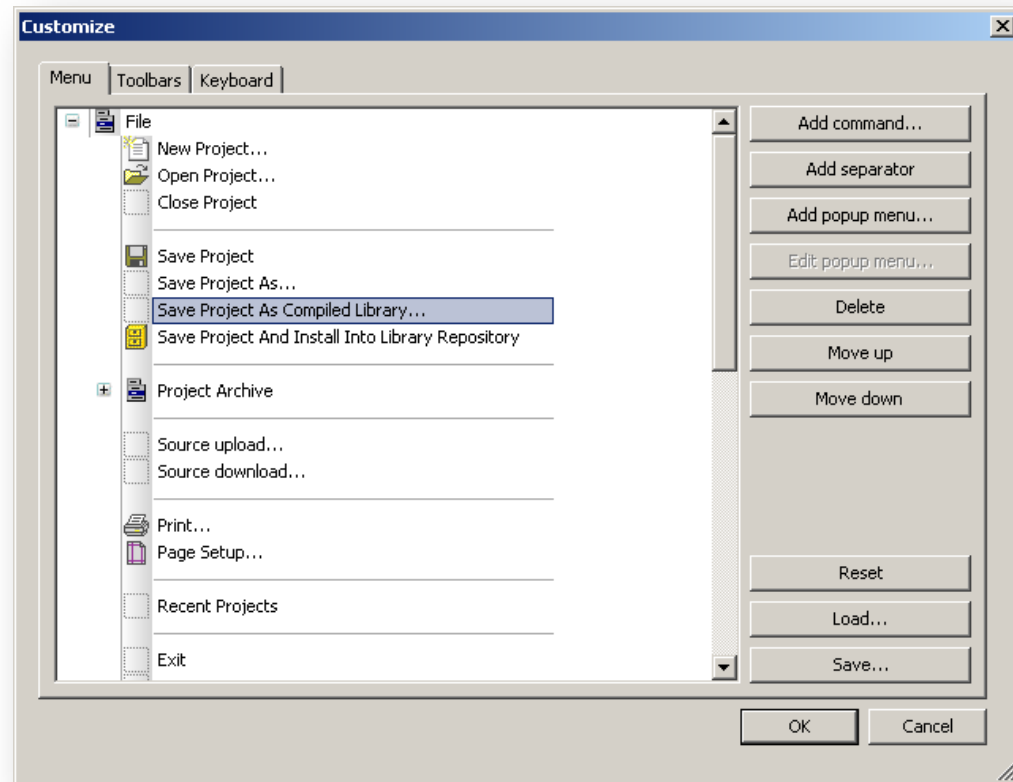
The screenshot shows the CODESYS IDE interface with several key features highlighted by red boxes and callouts:

- Object Tree:** A tree view on the left shows the project structure. A callout box states: "Find object by simply typing the search string in the object tree." Below this, a "Find Object" dialog box is shown with "Ca" entered in the search field, listing 5 objects found.
- Properties View:** A table view on the right shows the properties of the selected object. A callout box states: "'Toolbox' and 'Properties' views are automatically hidden if not used by the active editor." The table contains the following data:

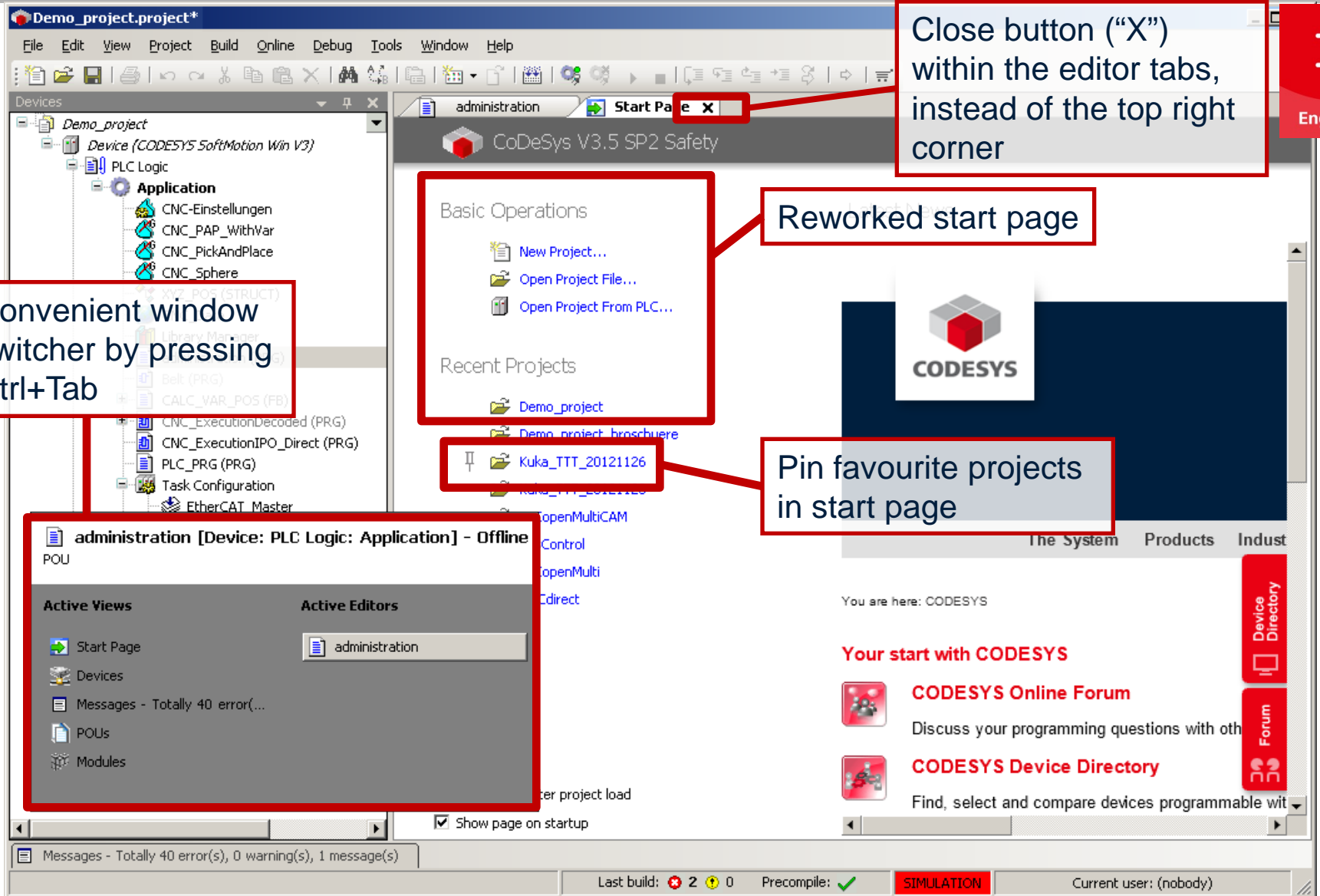
Expression	Type	Value
iState	INT	0
xMagnet	BOOL	FALSE
xAborted	BOOL	FALSE
xStart	BOOL	FALSE
xRobotOP	BOOL	FALSE
iExecutingState	INT	0
i	INT	13
amda	ARRAY [0..0] OF INT	
xError	BOOL	FALSE
g_iAddOverride	INT	0
movement	INT	0
xDone	BOOL	FALSE
iRetry	INT	0
normal	BOOL	FALSE
putf2f	INT	0
TTT	INT	0
putf2n	INT	0
- Code Editor:** The main editor shows ladder logic code. A callout box points to a split divider with the text: "Implementation and declaration parts can now be maximized quickly by clicking an arrow button within the split divider." The code includes:


```
iExecutingState 0 := 1;
AddOverride 0 := 12;
LSE := FALSE;
state 0 := 0;
ror FALSE := FALSE;
13 :=
xError
xErro
istat
EXIT;
IF
```
- Status Bar:** At the bottom, the status bar shows "Messages - Totally 40 error(s), 0 warning(s), 1 message(s)". A callout box states: "'Messages' view is now collapsed by default. Therefore, the total number of messages is displayed in the view caption. The number of build and precompile messages are displayed in the status bar. The collapsed view flashes noticeably when new messages occur."

- Various window handling improvements
 - Editors can be undocked and moved to a secondary screen.
 - Reworked 'Customize' dialog for user-defined menu, toolbar, and shortcut configuration.



Engineering: Usability

Close button ("X") within the editor tabs, instead of the top right corner

Reworked start page

Convenient window switcher by pressing Ctrl+Tab

Pin favourite projects in start page

administration [Device: PLC Logic: Application] - Offline

Active Views	Active Editors
Start Page	administration
Devices	
Messages - Totally 40 error(...)	
POUs	
Modules	

Messages - Totally 40 error(s), 0 warning(s), 1 message(s)

Last build: 2 0 Precompile: SIMULATION Current user: (nobody)



- ST editor
 - Parameter help in a tooltip when entering an opening parenthesis

```
Pos1 (
PROGRAM administration
VAR_INPUT  AxisGroupIdx  INT
VAR_INPUT  ExecuteCmd   BOOL
VAR_INPUT  Velocity     INT
VAR_INPUT  Acceleration INT
VAR_INPUT  Approximate  INT
VAR_INPUT  BufferMode   INT
VAR_OUTPUT Done         BOOL
```

- Truncated monitoring values now shown in a tooltip



Improved monitoring of Boolean values (same color code [TRUE = blue, FALSE = black] and same force icon as in the watch list), toggling preparation on double click

administration	Type	Value	Prepared value	Comment
State	INT	0		
xMagnet	BOOL	FALSE		
xAborted	BOOL	FALSE	TRUE	
xStart	BOOL	TRUE		
xStop	BOOL	FALSE		
iExecutingSt...	INT	0		

```

1  xMagnet FALSE := FALSE;
2  xAborted FALSE <TRUE> := FALSE;
    
```

```

7  g_iAddOverride 0 := 12;
    
```

Clicking the line number will select the entire line.

```

14 FOR i 13 :=1 TO 12 DO
    
```

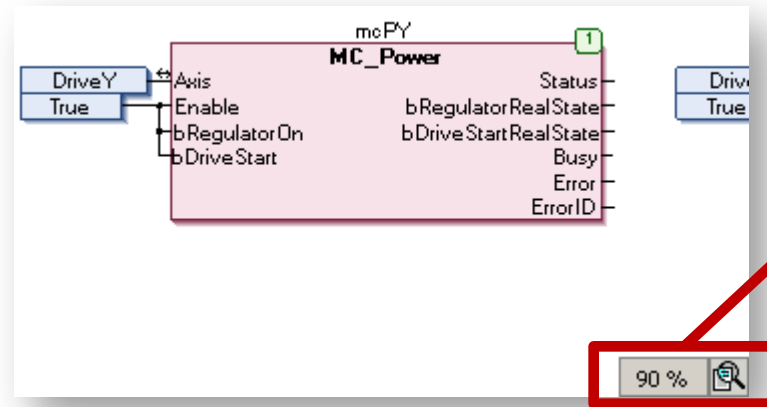
Possible breakpoint positions are displayed in the margin area.

```

15     IF xError FALSE THEN
16         xError FALSE := TRUE;
17         istate 0 := 1001;
18     EXIT;
19     END_IF
20     xAborted FALSE <TRUE> := xAborted FALSE <TRUE>;
21     IF xAborted FALSE <TRUE> THEN
    
```




- Graphical editors
 - Improved scrolling capabilities
 - Zooming is now possible by using **Ctrl + mouse wheel**.



Zoom in
steps of 10%

- Various other usability improvement

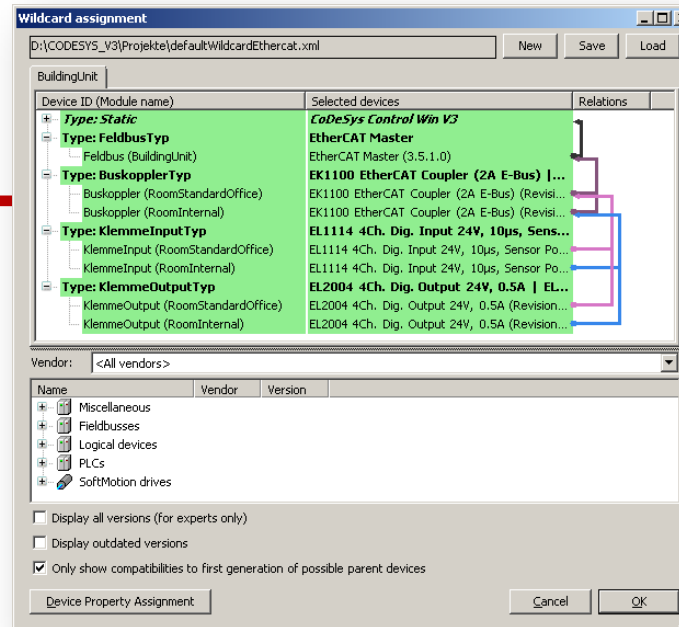
Engineering: CODESYS Application Composer



Engineering

■ New features

■ Device Generator



■ Sequence editor

■ IntelliSense in module declaration

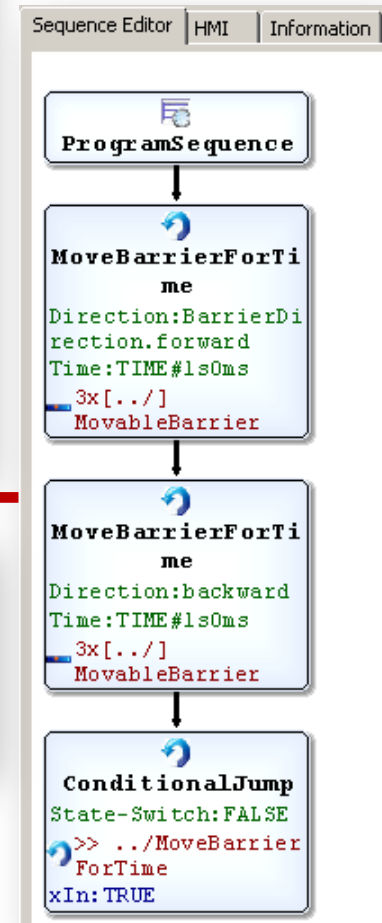
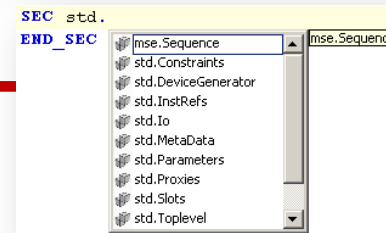
■ Print I/O connection dialog

■ Automatic Proxy mirroring

■ Python script driver

■ Minima and maxima for parameters

■ Import/Export of modules





Engineering: CODESYS Store - Introduction

- Online shop for the distribution of commercial and free CODESYS related products
- Content provided by 3S-Smart Software Solutions as well as by third-party-suppliers such as OEM customers or independent companies/users



The screenshot shows the CODESYS STORE website interface. At the top right, there are links for 'My Account', 'Login', 'My Wishlist', and a 'Service' dropdown menu. The main header features the CODESYS logo and the word 'STORE'. Below this is a navigation bar with categories: 'Engineering', 'Application', 'Communication', 'Devices', 'Accessories', and 'All Products'. A search bar is located below the navigation bar, with a search button and a dropdown for 'All Product Areas'. To the right of the search bar, there is a 'Cart' icon showing '0 Products' for '€0.00' and a 'New to the CODESYS Store? Get started' button. The main content area features a large blue banner for 'CODESYS SVN' with the text 'Versions- & Revisionsverwaltung jetzt auch für Automatisierungsprojekte mit CODESYS' and 'Ready to synchronize your project!'. Below the banner, there are tabs for 'New', 'Top Seller', 'Free', and 'All'. Three product listings are visible:

Product Name	Category	Supplier	Price	Reviews
Date and Time	Anwendung	3S-Smart Software Solutions GmbH	€0.00	0 Reviews
SQL4CODESYS	Kommunikation	Inasoft GmbH	€0.00	0 Reviews
PLCcloud	Engineering	2M		0 Reviews

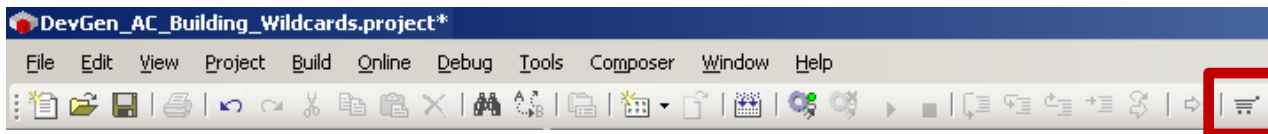


Engineering: CODESYS Store Content

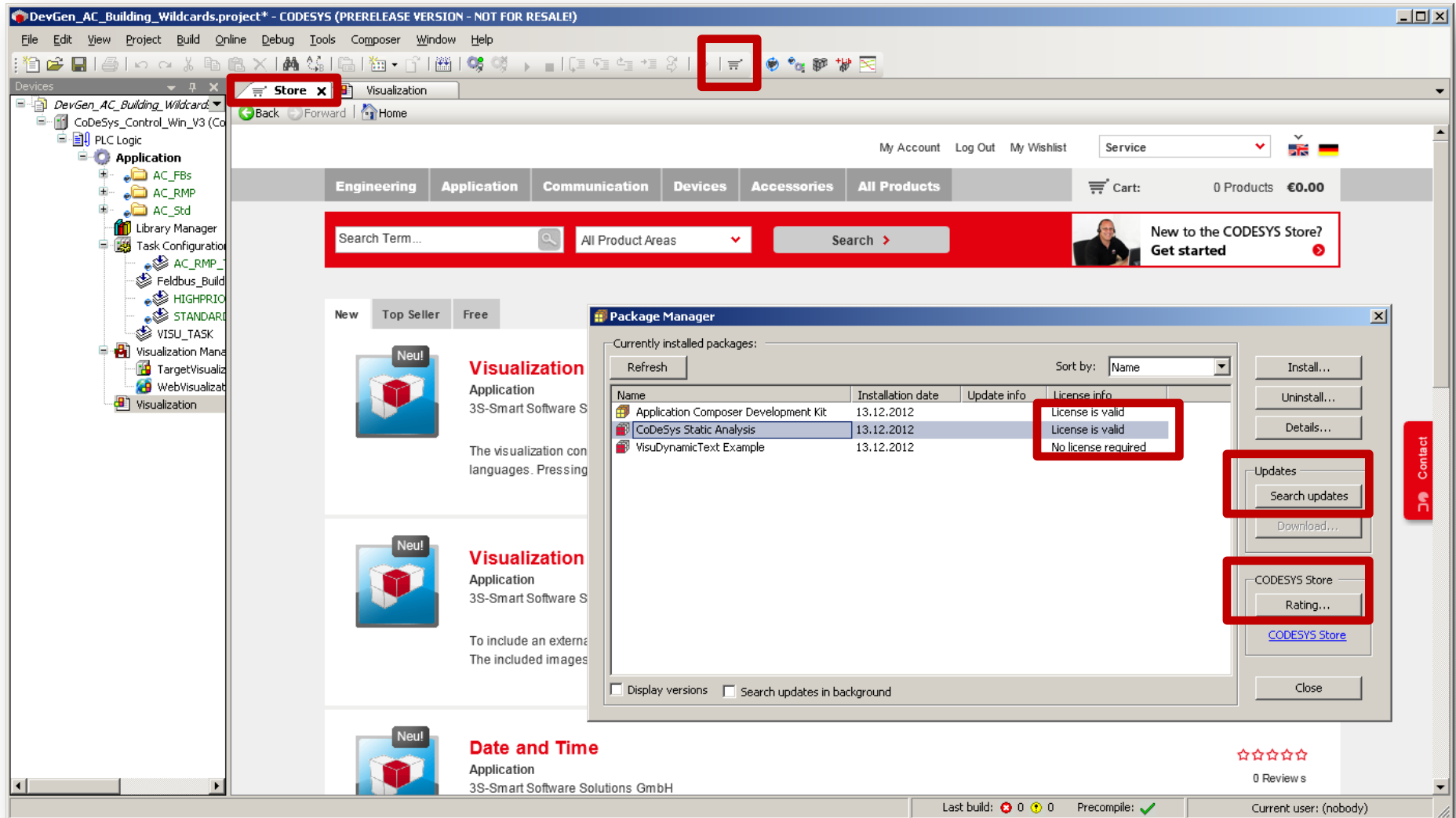
Commercial content	Free of charge content
<ul style="list-style-type: none"> ▪ Application libraries ▪ Visualization elements ▪ Libs for specific device support, i.e. IO-Link gateway ▪ Plug-Ins, i.e. integration to version control system 	<ul style="list-style-type: none"> ▪ Example projects ▪ Device description files ▪ Utility libs

Engineering: CODESYS Store - Usage

- As standard online platform under <http://store.codesys.com>
- Fully integrated in CODESYS as of version V3.5 SP2 including
 - product selection (in the integrated browser)
 - download and installation of products as package directly in the existing CODESYS installation
 - update information on installed products
 - licensing / purchase / rating of products



Engineering: CODESYS Store - Usage



DevGen_AC_Building_Wildcards.project* - CODESYS (PRERELEASE VERSION - NOT FOR RESALE!)

File Edit View Project Build Online Debug Tools Composer Window Help

Store

My Account Log Out My Wishlist Service

Engineering Application Communication Devices Accessories All Products

Cart: 0 Products €0.00

Search Term... All Product Areas Search

New to the CODESYS Store? Get started

Package Manager

Currently installed packages:

Name	Installation date	Update info	License info
Application Composer Development Kit	13.12.2012		License is valid
CoDeSys Static Analysis	13.12.2012		License is valid
VisuDynamicText Example	13.12.2012		No license required

Install... Uninstall... Details... Search updates Download... CODESYS Store Rating... CODESYS Store

☆☆☆☆☆ 0 Review s

Last build: 0 Precompile: ✓ Current user: (nobody)



Agenda

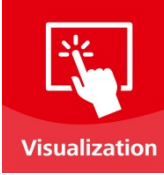
- 1** Engineering Engineering
- 2** Visualization Visualization
- 3** Motion+CNC Motion + CNC



- Preview of the user administration in the visualization
- Usability – frame selection improvements
- Multiline messages in the alarm table
- WebVisu JavaScript – for all smartphones and tablets
- Revised TraceElement
- Licensing VisuElement Toolkit



Visualization: Preview of User Administration (1)



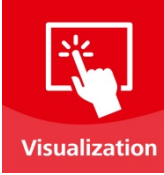
- User administration in the visualization – Usage can be restricted for certain user groups.

The screenshot shows the 'User management' tab in the VisualizationManager application. It features a table with columns for Group name, Automatic logout, Logout time, Permission to change user data, and Description. Below the table are four buttons: 'Export groups for global visualizations', 'Delete complete usermanagement', 'Export usermanagement', and 'Import user management'.

Group name	Automatic logout	Logout time	Permission to change user data	Description
+ Admin	<input checked="" type="checkbox"/>	10 second(s)	<input checked="" type="checkbox"/>	
- Service	<input type="checkbox"/>	0 minute(s)	<input type="checkbox"/>	
has user 'Service'				
has user 'Service2'				
+ Operator	<input type="checkbox"/>	0 minute(s)	<input type="checkbox"/>	
None	<input type="checkbox"/>	1 minute(s)	<input type="checkbox"/>	



Visualization: Preview of User Administration (2)



- Users can be created and assigned to certain user groups.
- The restriction of rights can be done individually or with a group hierarchy.

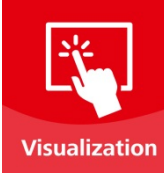
The screenshot shows the 'User management' tab in the VisualizationManager application. It features a table with the following data:

Login name	Full name	Password	User group	Deactivate	Description
Administrator	Administrator	*****	Admin	<input type="checkbox"/>	
Service	Service	*****	Service	<input type="checkbox"/>	
Operator	Operator	*****	Operator	<input type="checkbox"/>	
Service2	Service2	*****	Service	<input type="checkbox"/>	

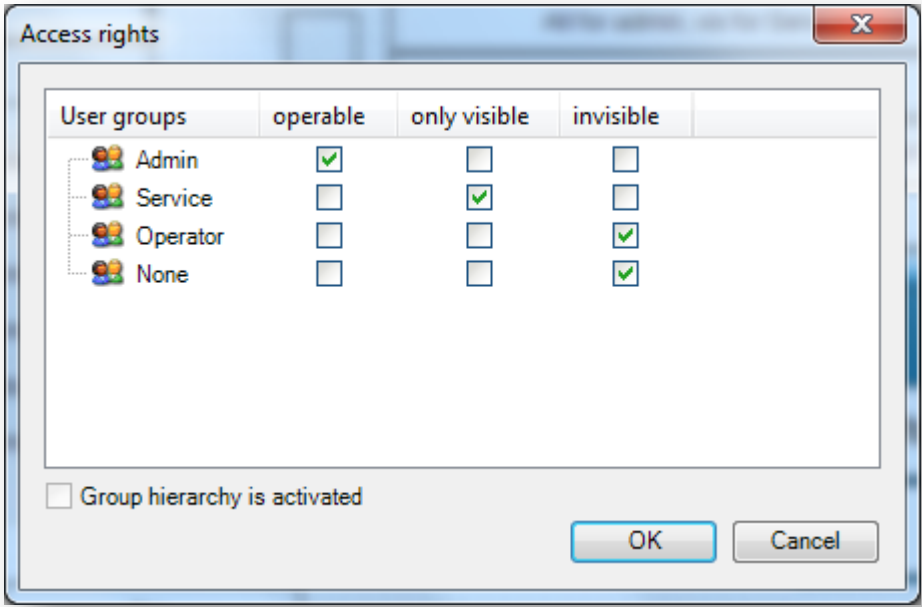
Below the table are four buttons: 'Upload user from device', 'Download user to device', 'Export usermanagement', and 'Import user management'. The interface also includes tabs for 'Groups', 'Users', and 'Settings', and a 'Device' dropdown menu.



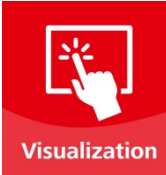
Visualization: Preview of User Administration (3)





- It can be individually defined for every single visualization element whether a certain user group can see and/or operate it.



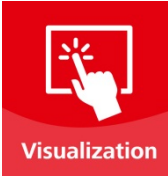
Visualization: Preview of User Administration (4)



- The restricted elements are displayed in the element list in the column access rights.

Typ	X	Y	Breite	Höhe	ID	Name	Zugriffsrechte
#6 Textfeld	231	173	367	25	13	GenElemInst_14	
#7 Textfeld	231	201	367	25	15	GenElemInst_16	
#8 Textfeld	231	89	367	25	17	GenElemInst_18	
#9 Textfeld	232	229	367	25	19	GenElemInst_20	
#10 Textfeld	232	257	367	25	22	GenElemInst_24	
#11 Frame	203	343	402	177	2	GenElemInst_27	
#12 Rechteck	391	27	35	30	24	GenElemInst_28	
#13 Rechteck	17	10	307	30	28	GenElemInst_32	
#14 Rechteck	17	42	307	30	30	GenElemInst_34	
#15 Registersteuerelement	646	146	260	165	31	GenElemInst_35	
#16 Group	443	16	479	128	44	GenElemInst_46	
#17 Rechteck	248	312	150	30	0	GenElemInst_47	

Visualization: Preview of User Administration (5)



■ User administration online

Login

Login

Username:

Password:

New password

Change password

User name:

Old password:

New password:

Acknowledge password:

Create, edit or delete users

User management

Username	Full name	
Admin	Administrator	☰
Service	Service	☰
Operator	Operator	☑

User name:

Full name:

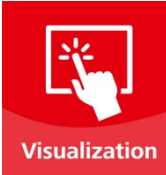
Password:

Acknowledge password:

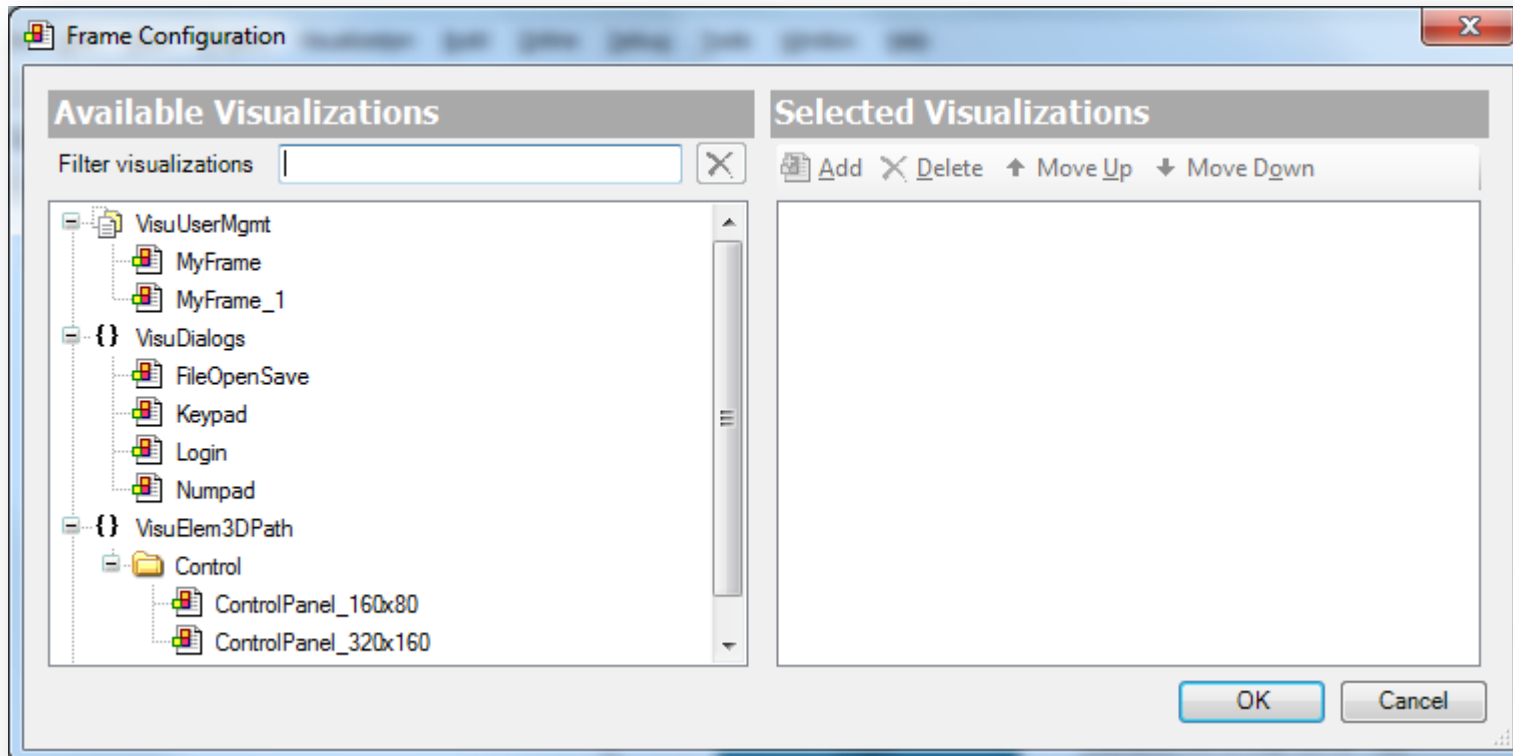
User group:

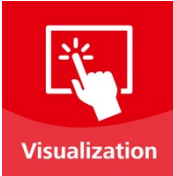
Deactivated:

Visualization: Frame Selection



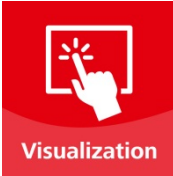
- Improved frame selection
 - Hierarchical display – filter for visualization names
 - Dialog appears automatically when frame element is inserted





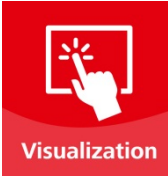
- Multiline messages in the alarm table
 - Automatic line break if message text cannot be fully displayed
 - Configurable line break

	Timestamp	Message	Timestamp active	Timestamp acknowledge	State
1	19.11.2012 10:11:55	Alarm 19 aktiv	19.11.2012 10:11:55		Active
2	19.11.2012 10:11:52	Alarm 17 aktiv	19.11.2012 10:11:52		Active
3	19.11.2012 10:11:47	Alarm 32 aktiv mit 3 Zeilen	19.11.2012 10:11:47		Active
4	19.11.2012 10:11:45	Alarm 23 aktiv	19.11.2012 10:11:45		Active
5	19.11.2012 10:11:29	Alarm 11 aktiv mit sehr langem Text, der automatisch umgebrochen werden soll und jetzt noch ein wenig länger ist	19.11.2012 10:11:29		Active



- Licensing VisuElement Toolkit – Dongle required from CODESYS V3.5 SP2

- Revised TraceElement
 - From CODESYS V3.5 SP2: connection to CmpTraceManager from the runtime system
 - New PlotLib:
 - ➔ Better looking scales
 - ➔ More functionality – Display of the metering points
 - ➔ Separate configuration – the trace element is no longer tied to the trace object



- WebVisu HTML5 + JavaScript – Executable on all standard browsers => on smartphones and tablets, too

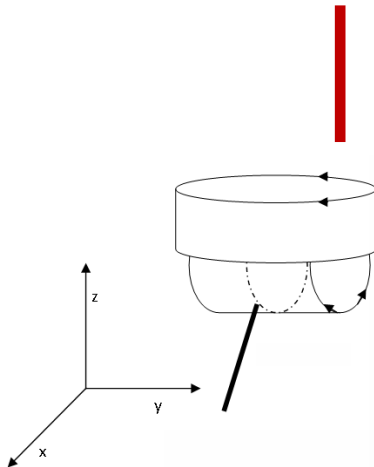
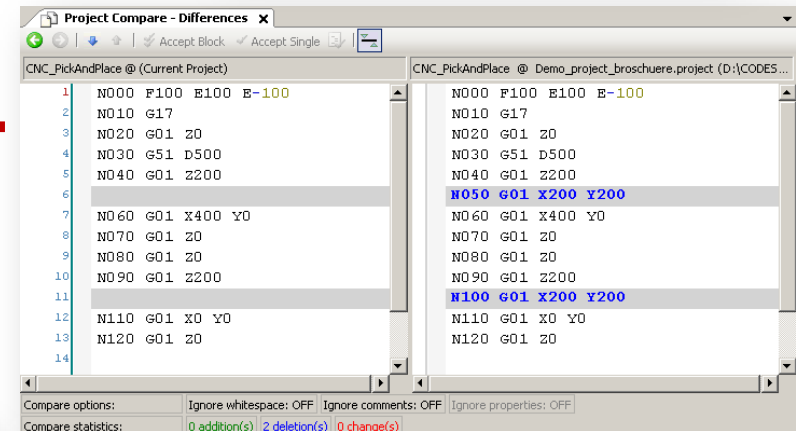




Agenda

- 1** Engineering Engineering
- 2** Visualization Visualization
- 3** Motion+CNC Motion + CNC

- Jerk support in the PLCopen POU's
- New drivers for the following drives:
 - Stöber SD6
 - Parker SBC
- CNC editor: Project Compare
- CNC: Block search
- Transformation: 5-axis transformation



SMC_TRAFOF_5Axes		
DriveX	AXIS_REF_SM3	LREAL dx
DriveY	AXIS_REF_SM3	LREAL dy
DriveZ	AXIS_REF_SM3	LREAL dz
DriveInd	AXIS_REF_SM3	LREAL dAzimuth
DriveAzi	AXIS_REF_SM3	LREAL dInclination
dOffsetX	LREAL	LREAL da
dOffsetY	LREAL	LREAL db
dOffsetZ	LREAL	LREAL dc
dOffsetInd	LREAL	
dOffsetAzi	LREAL	
dTool	LREAL	
minX	LREAL	
maxX	LREAL	
minY	LREAL	
maxY	LREAL	
minZ	LREAL	
maxZ	LREAL	



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Thank you for your attention.