

CSK - CAD Systeme Kluwetasch

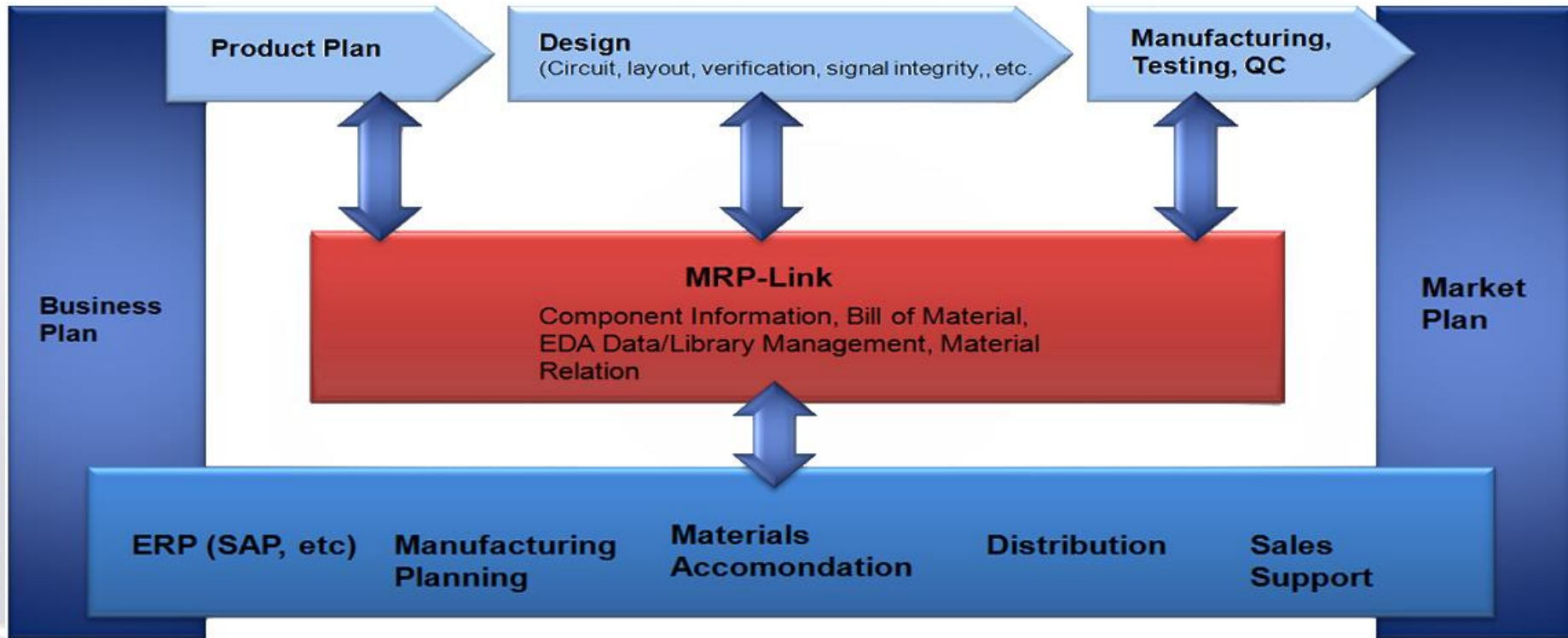


MRP-Link Internal Communication with CADSTAR

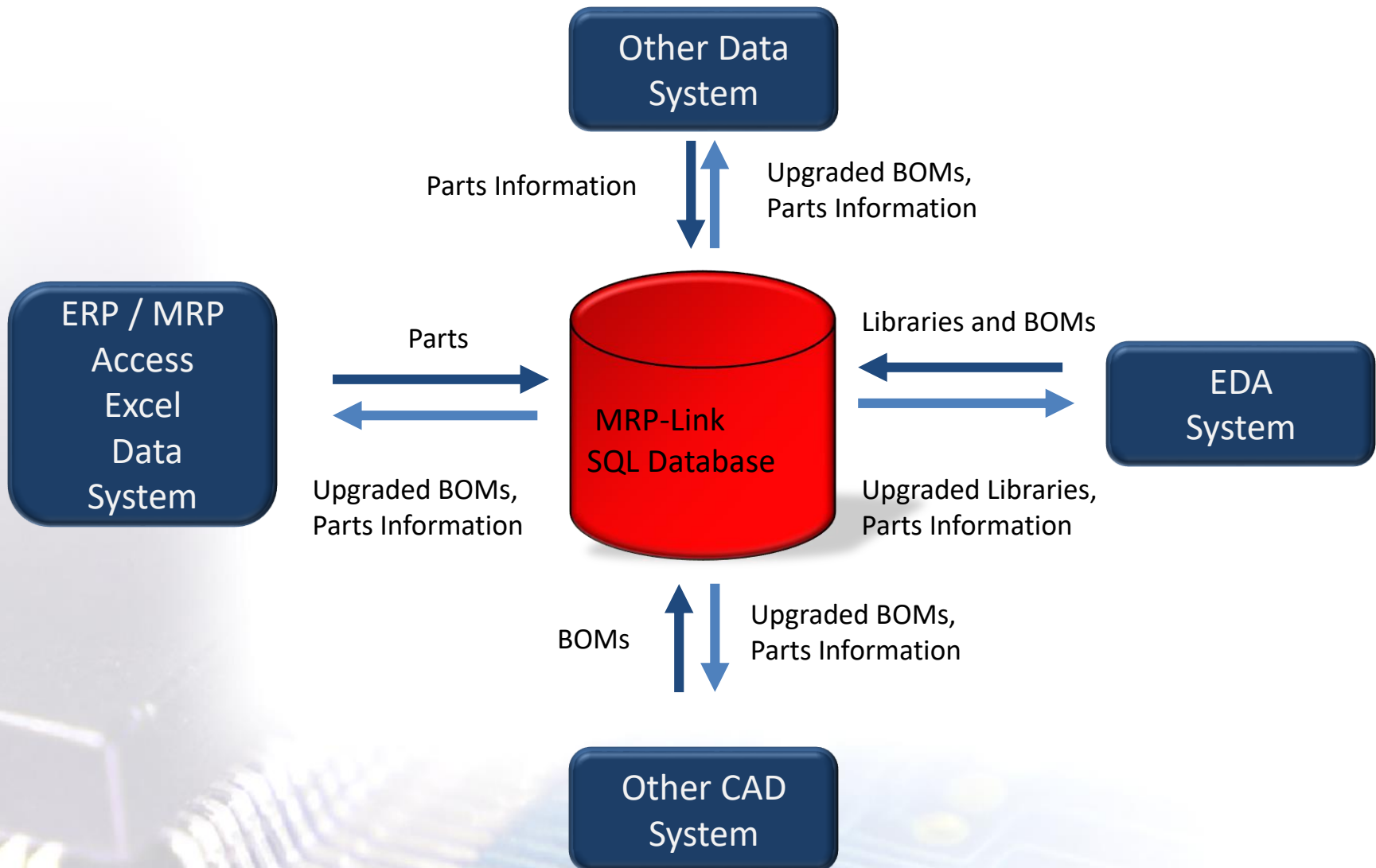
- MRP-Link
- Area of operations
- List of benefits
- Physical realize and theatrical data structure
- Some important key functions
- Inter tool communication between CADSTAR and MRP-Link
- Zugen CADSTAR and CSK MRP-Link User
- Maintenance revenues from CADSTAR & MRP-Link User
- Impact to customer lose the csa/cpa OLE Functions
- Necessary communication requirements
- Current CADSTAR – MRP-Link Evaluation
- Overview of available Module Prices

MRP-Link Business Process flow

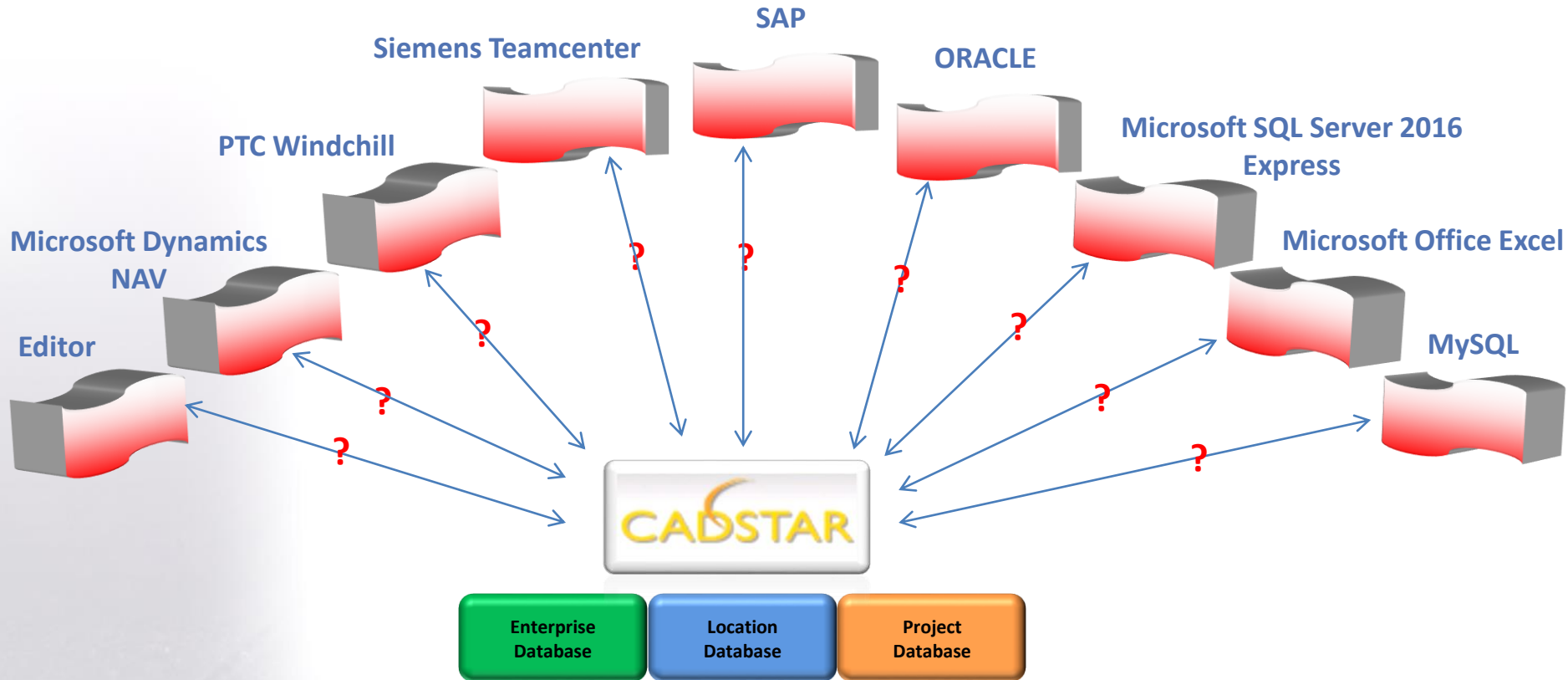
Providing a collaborative environment to assist you during the development process.



MRP-Link information flow



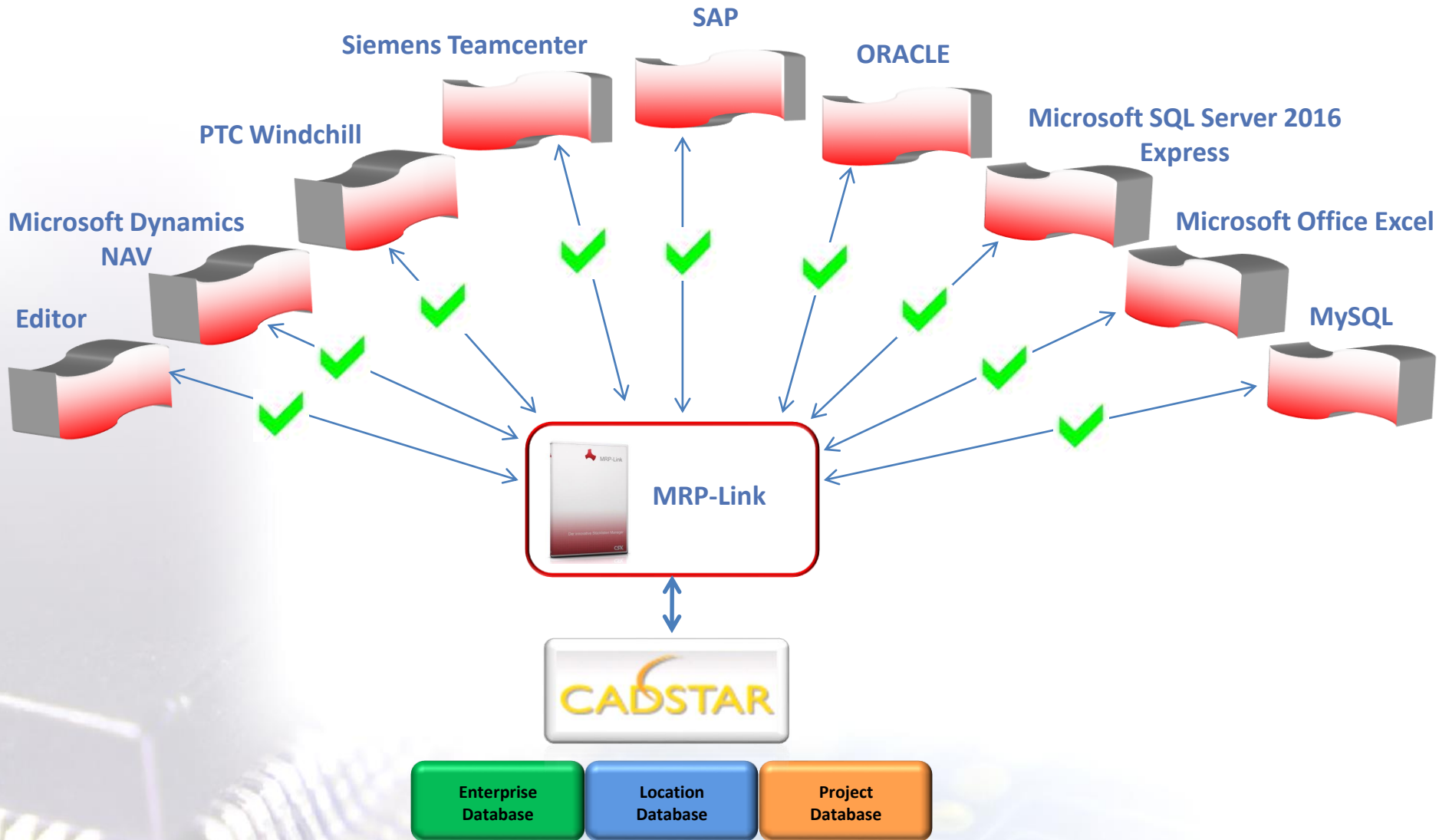
Each software will need its individual interface to work with CADSTAR



For each external system a complex software interface is necessary which follows the data schema from CADSTAR.

In the real world the CAD relevant information is distributed in different software programs and storages.

MRP-Link will ensure this connectivity

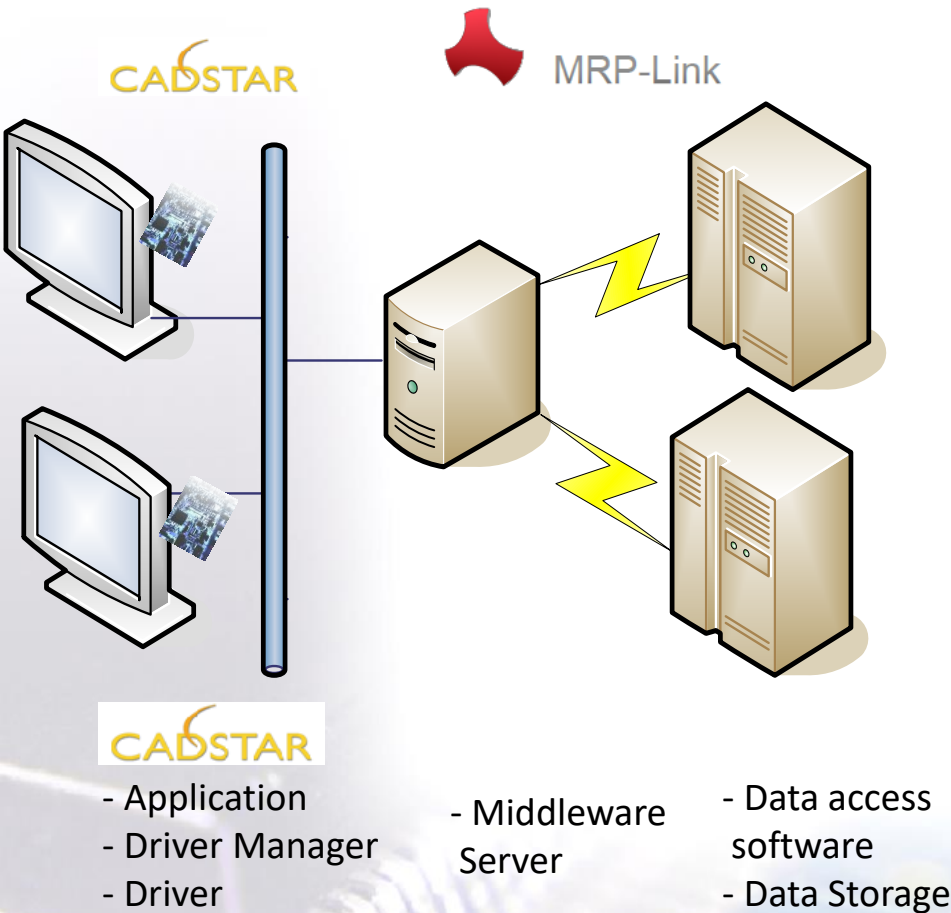


Key benefits of the MRP-Link

- Software **out of the box** self customizing functions and process flow automations
- In view of its **modular expansion** options, the MRP-Link is flexible and versatile in use
- Processing rules can be custom-controlled with the **Constraint Manager** and the users **execution rights**
- Cross-site **data replication** safeguards data consistency
- The **Parts Stock**, the central element, can be expanded on a customised basis with **further modules**
- The **CADSTAR Attribute synchronising** minimizes errors when creating designs
- The usage of **CSV-files** ensures **connectivity** with almost all used business applications
- The automatic **column name translation** systematic enables unlimited communication



Single-Tier or Multiple-Tier Configuration



The Application, Driver and Driver Manager reside on one system, typically called the CADSTAR client.

Between client and server we could have **more powerful** query builder like **MRP-Link**.

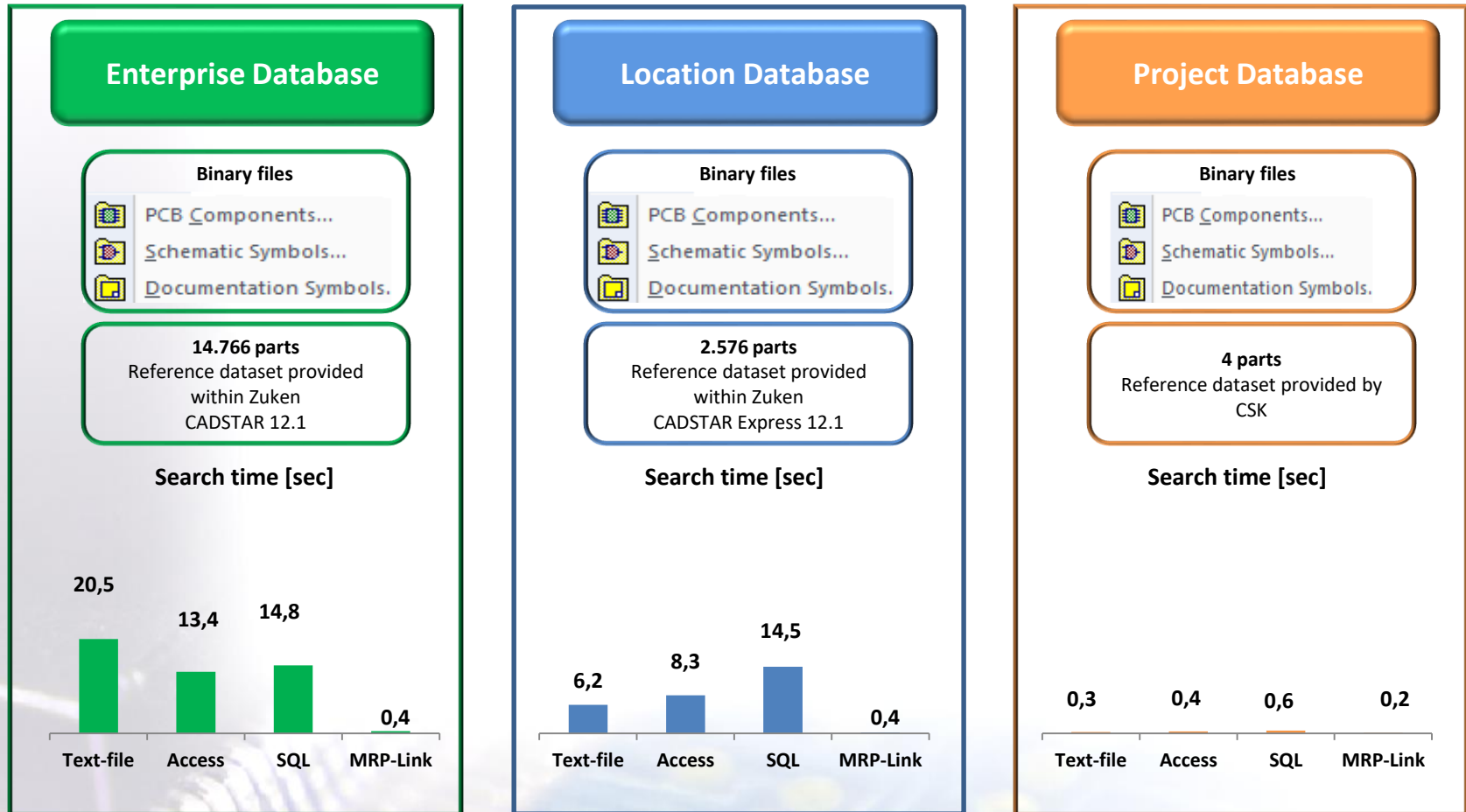
This part optimizes, controls and manages the client request to one or several database systems. It collaborates the results in a single answer to the clients.

The database and the software, which controls access to the database resides on another system, is typically called the database server.

This implies query resolution intelligence resides on the middleware server.

Typical Enterprise Company Installation

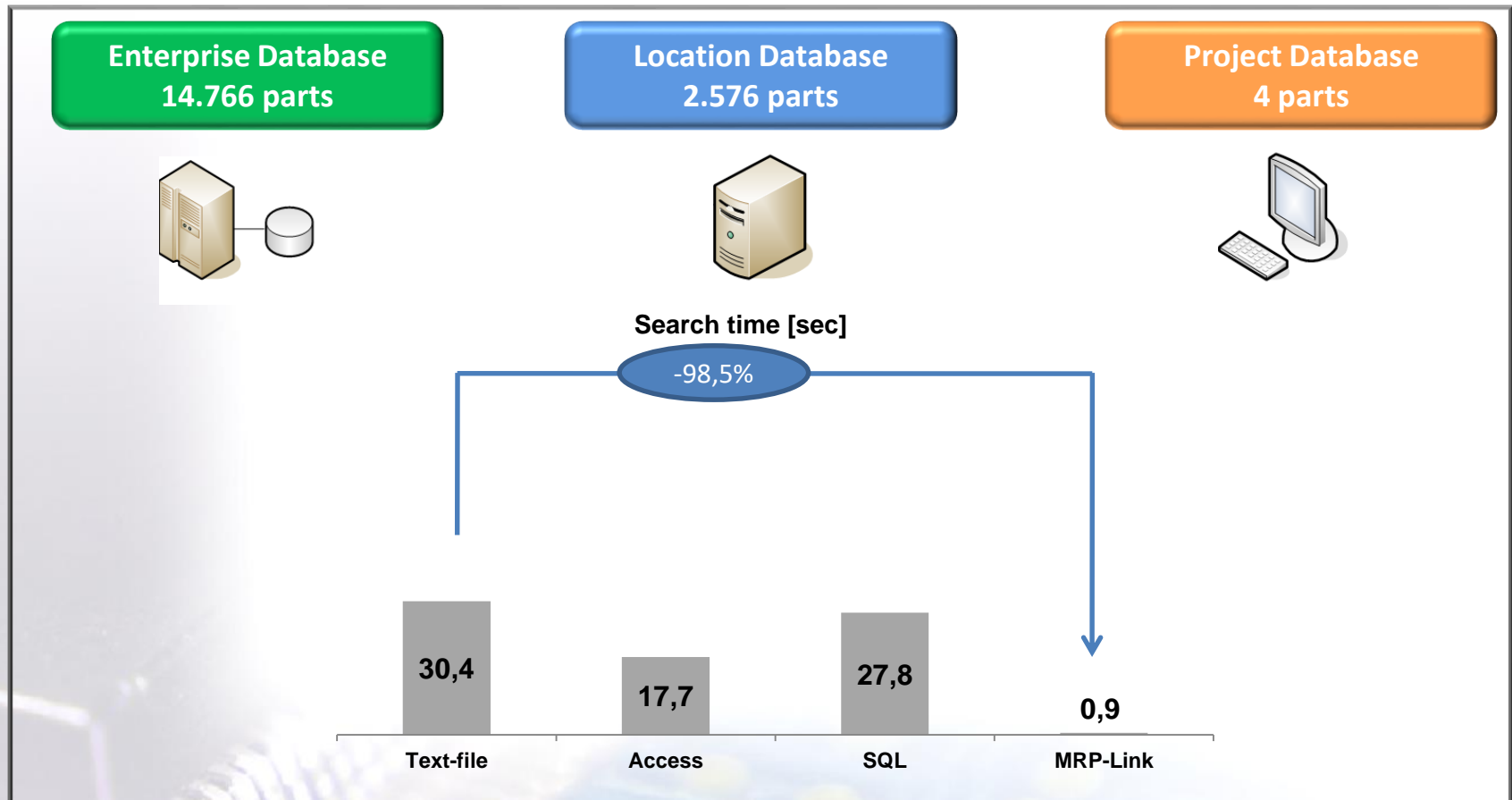
Within local environments, the usage of MRP-Link could already save most of the search time.



Hardware: DELL M4300, 4GB RAM, Windows 7 64 Bit & CADSTAR

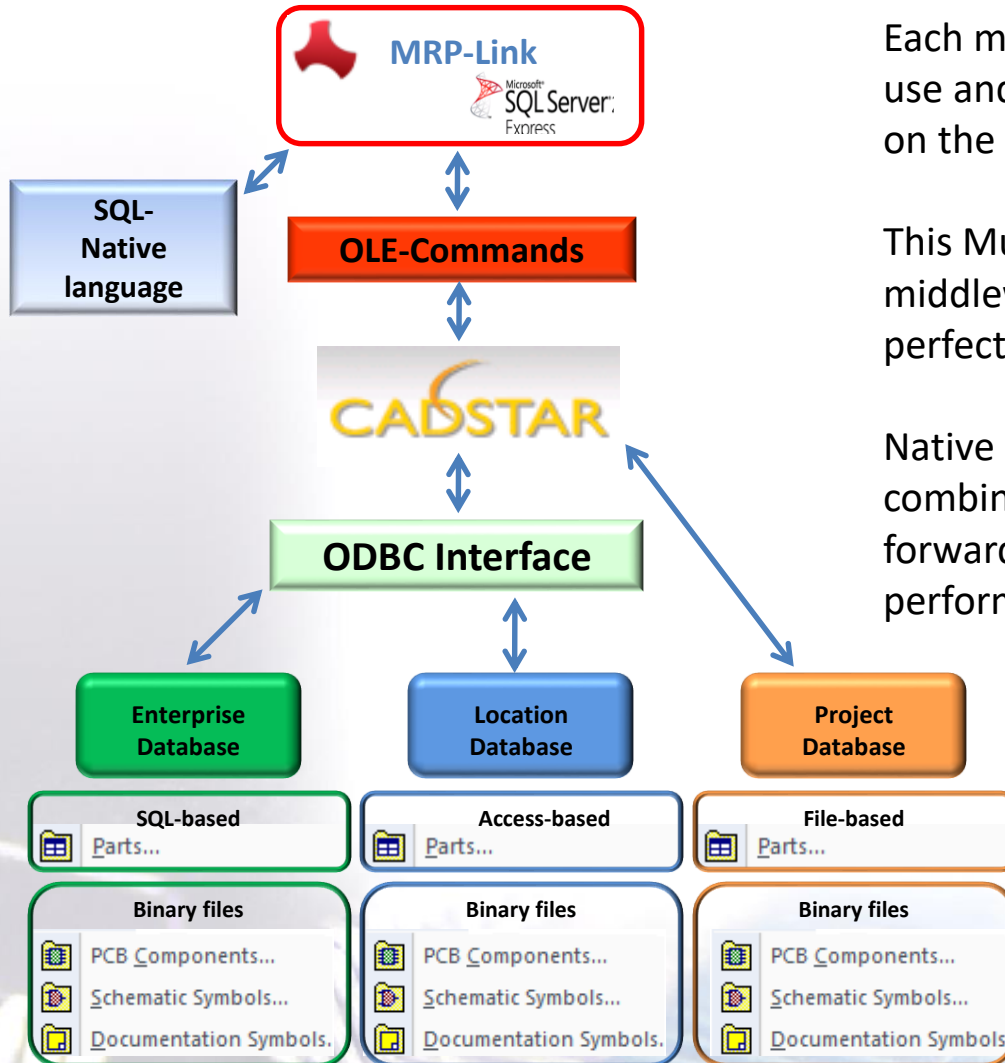
Comparison of global search times

...when looking for parts **globally** in all implemented databases, MRP-Link could save up to **99%** of search time.



Hardware: DELL M4300, 4GB RAM, Windows 7 64 Bit, & CADSTAR
all database running on the same machine

The open structure is the foundation for any integration with PLM / Corporate Databases.



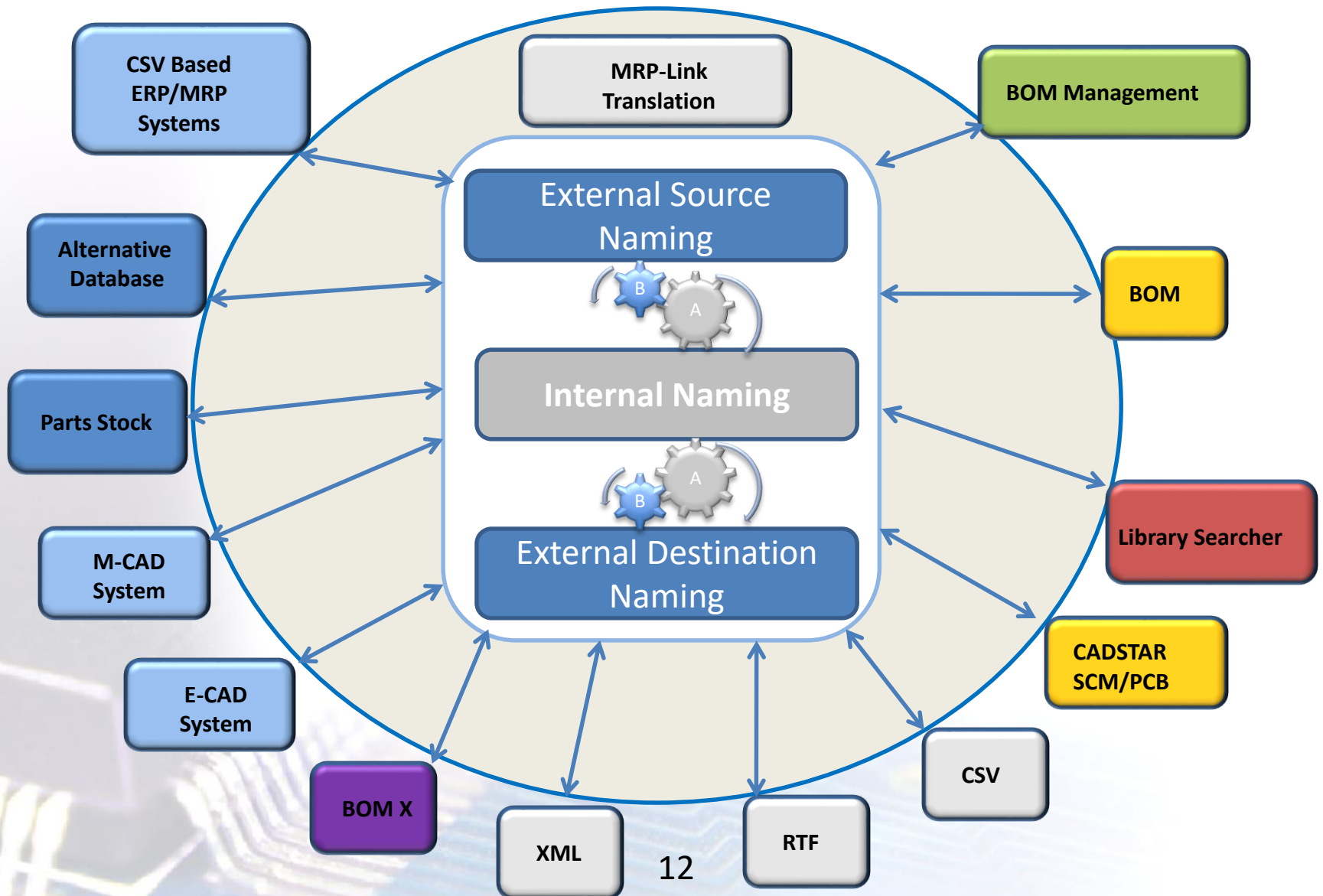
Each middleware software has now the chance to use and introduce the best fit techniques depending on the current situation.

This Multiple-Tier implementation with the middleware **MRP-Link** demonstrate this technique perfect.

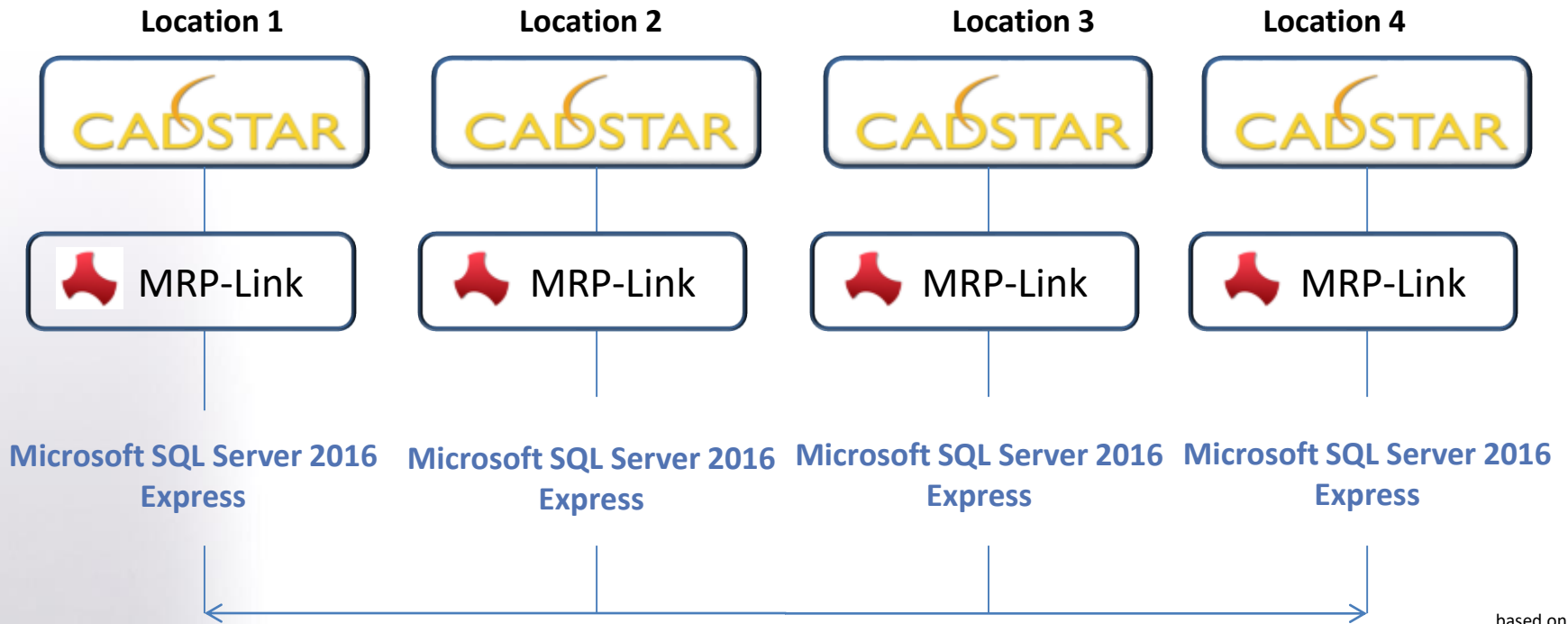
Native SQL language direct on a SQL-Server combined with direct online OLE-communication forward to CADSTAR results in a unique performance.

It is well-known that ODBC interfaces are limiting the performance of data bases and thus of CADSTAR as well.

MRP-Link Column Name Translation Systematic



MRP-Link Data Replication

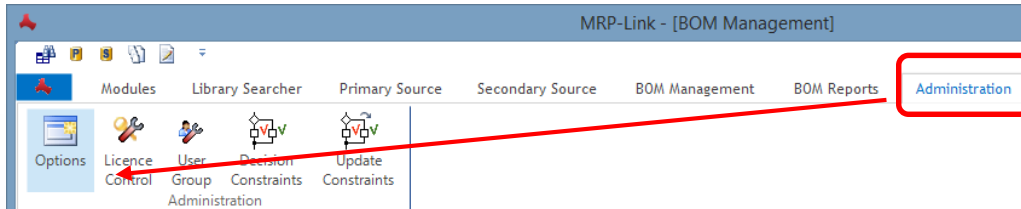


based on
 Microsoft Visual Studio

SQL-Server is not part of MRP-Link

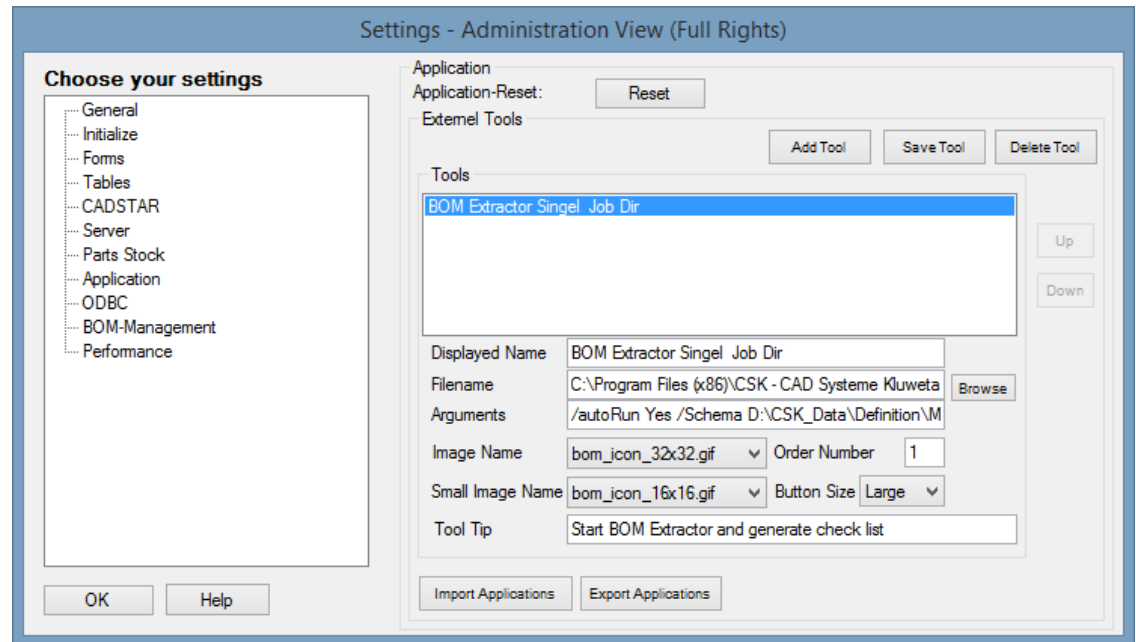
- Each site is able to work independently from the other site.
- If an internet connection becomes available, it is possible that asynchronous data will be synchronized between the sites.
- The technology of merge replication is used.

MRP-Link Add Point in Customer Menu



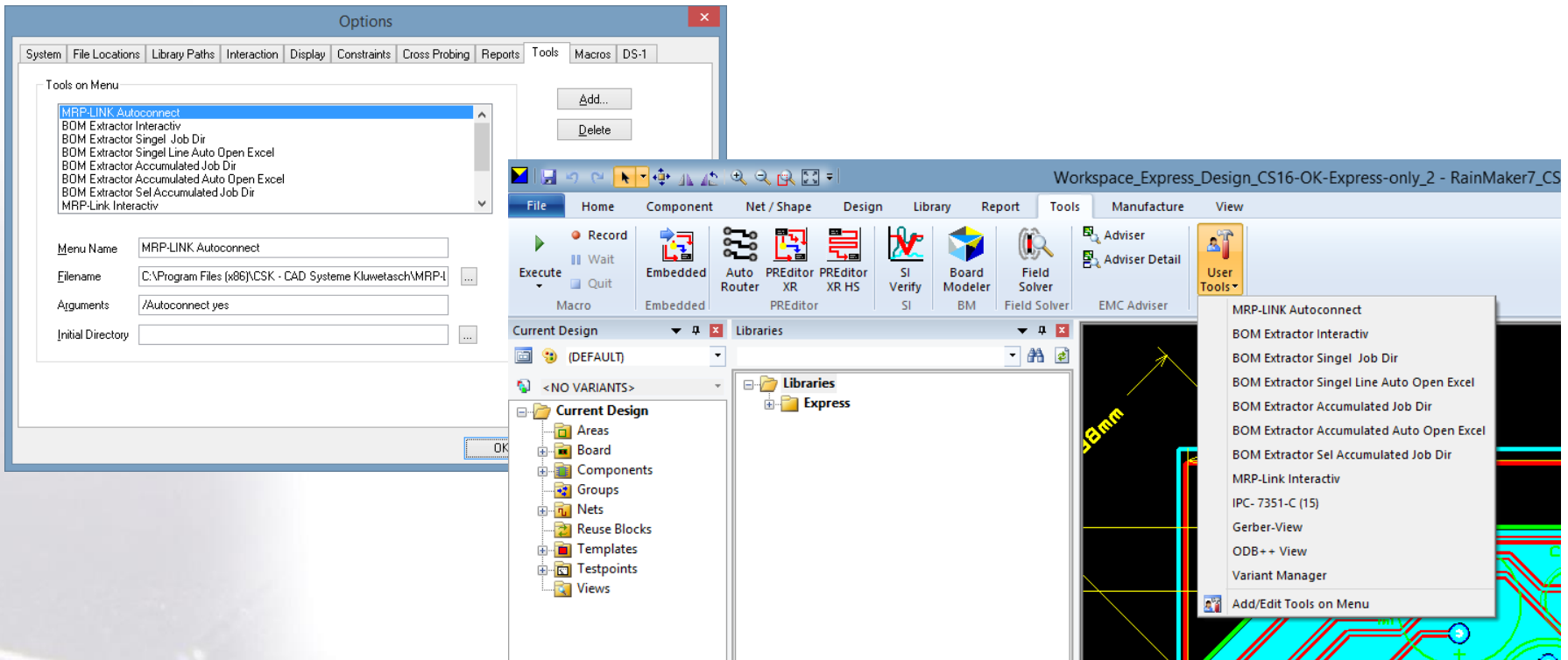
The CADSTAR menu shows the user to generate a defined BOM - or check list from the current design.

In the application hierarchy is a very similar menu, which is well known from CADSTAR. The difference are necessary because we work with a Database to populate the new lines and values.



The BOM Extractor will now start with “/AutoRun Yes” as first parameter. The second parameter “/Schema Filename.xml” will point to a BOM Schema. Which include the option- and view setting for the file export, RTF, xml od CSV.

The customized menu bottoms are placed inside the CADSTAR menu.

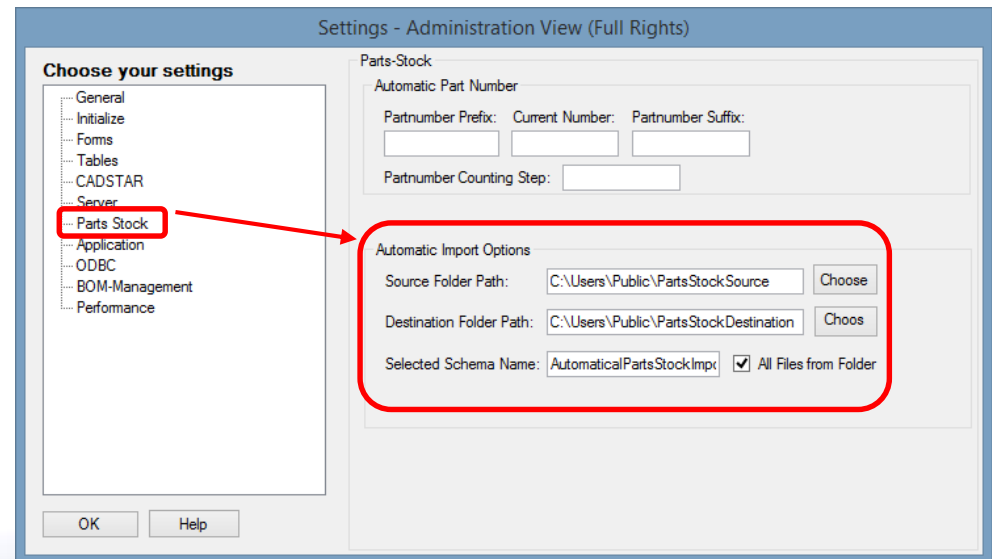


With a single simple mouse click the user is able to carry out a series of functions with different user defined results.

Like an auto open of any BOM direct online from CADSTAR into Excel.

With the MRP-Link we offers you the opportunity to carry out a lot of batch processing.

- Auto start other applications
 - Like CADSTAR, BOM Extractor, Excel
 - And other...
- Auto Import via Windows scheduler PLM/ERP Attribute Values in to the CADSTAR Parts Stock
- Auto create new Part numbers
- Reload Menu
- Reset locks
- Auto Run BOM Extractor
- Auto Connect to a database and a much more functions.



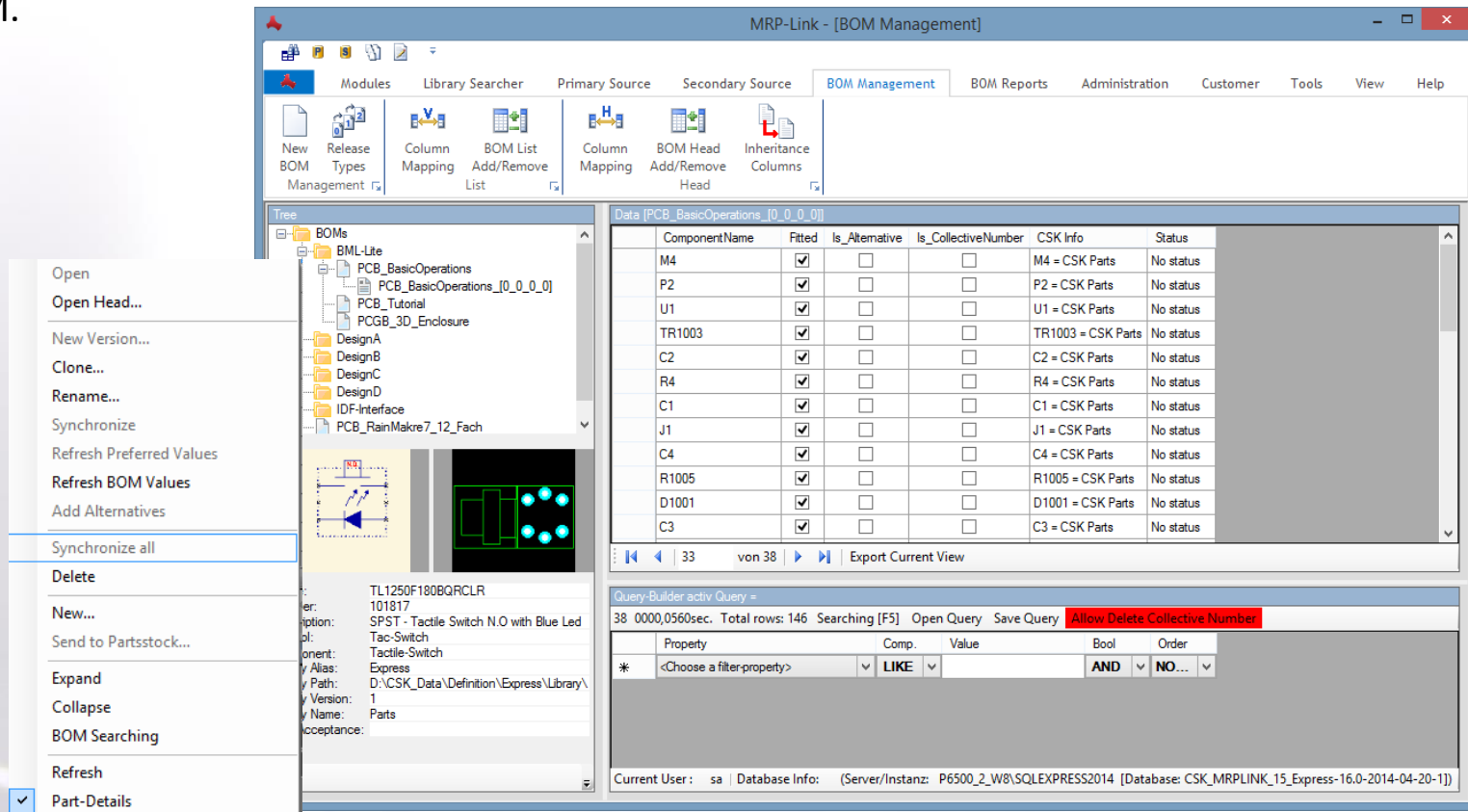
MRP-Link Auto Start Info:

```
/DatabaseSystem MS SQL Server 2014/ServerInstanz P6500-2\SQLEXPRESS2014/LoginName sa/Passwort Sql2014/DatabaseName  
CSK_MRPLINK_16_CADSTAR_Express_16
```

```
/AutoConnect Yes
```


MRP-Link – BOM Management View

Inside the MRP-Link we have the option to synchronize or to do any other manipulation with the BOM.



ComponentName	Fitted	Is_Alternative	Is_CollectiveNumber	CSK Info	Status
M4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M4 = CSK Parts	No status
P2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	P2 = CSK Parts	No status
U1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	U1 = CSK Parts	No status
TR1003	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TR1003 = CSK Parts	No status
C2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C2 = CSK Parts	No status
R4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R4 = CSK Parts	No status
C1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C1 = CSK Parts	No status
J1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	J1 = CSK Parts	No status
C4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C4 = CSK Parts	No status
R1005	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R1005 = CSK Parts	No status
D1001	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D1001 = CSK Parts	No status
C3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C3 = CSK Parts	No status

Property	Comp.	Value	Bool	Order
* <Choose a filter-property>	LIKE		AND	NO...

As example, we know two different types of constraints:

- Simple Report constraint
- Update constraint

Key functions:



- Fast searching (find any part in 1 second or less)
- Direct communication with CADSTAR (drag & drop,...)
- Define unlimited search criteria by combine by “AND” and “OR”
- Compare values on different ways
- Reuse of queries by saving often used queries
- Bidirectional synchronizing of Parts Stock and CADSTAR

Query-Builder					
	Property	Comp.	Value	Bool	Order
	CADSTAR Partname	LIKE	*1N*	AND	ASC
	CADSTAR Description	LIKE	*Diode*	AND	NO...
	CADSTAR Alternate-Component	LIKE	*d*	AND	NO...
▶*	<Choose a filter-property>	LIKE		AND	NO...

2 0000,3120sec. Total rows: 17353 Searching [F5] Open Query

Key functions:

- Define and administrate users
- Define groups and assign access rights
- Assign user to groups
- Add representatives to user
- No group → no access rights
- Hide forbidden areas
(see only what's important)

SQL

Connect to Server

CSK

Database System : MS SQL Server 2014

Server Name : P6500_2_W8\SQLEXPRESS2014

Login Name : sa

Password : *****

Windows Authentication Server Log-on

Database : CSK_MRPLINK_15_CADSTAR_Express_16

Remember Me Send Logon to CADSTAR

Connect Cancel Help Options >>

or

Windows Authentication

Connect to Server

CSK

Database System : MS SQL Server 2014

Server Name : P6500_2_W8\SQLEXPRESS2014

Login Name :

Password :

Windows Authentication Server Log-on

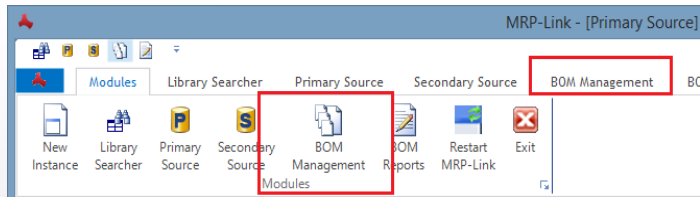
Database : CSK_MRPLINK_15_CADSTAR_Express_16

Remember Me Send Logon to CADSTAR

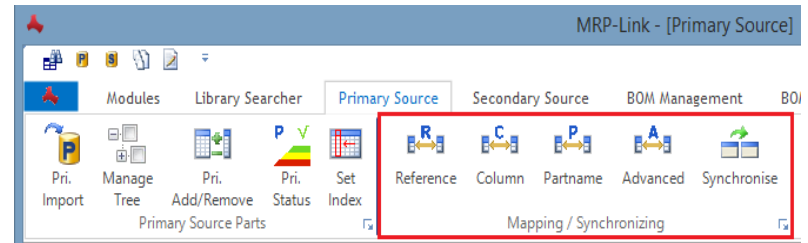
Connect Cancel Help Options >>

All access rights = all view

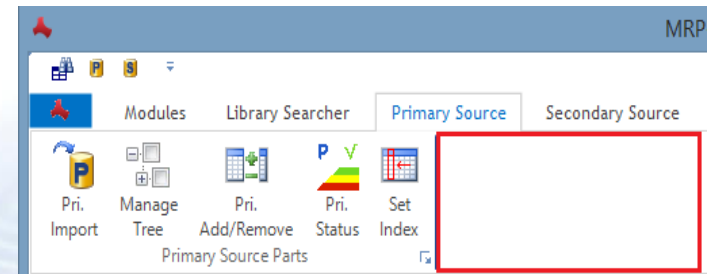
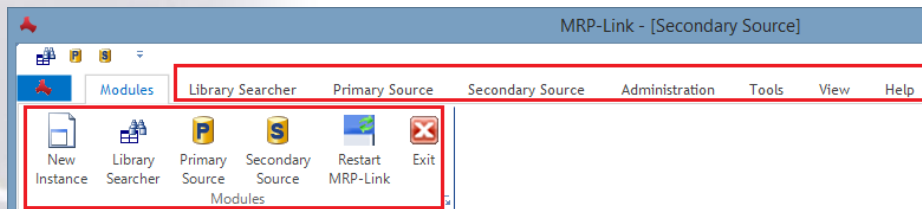
BOM Management Module



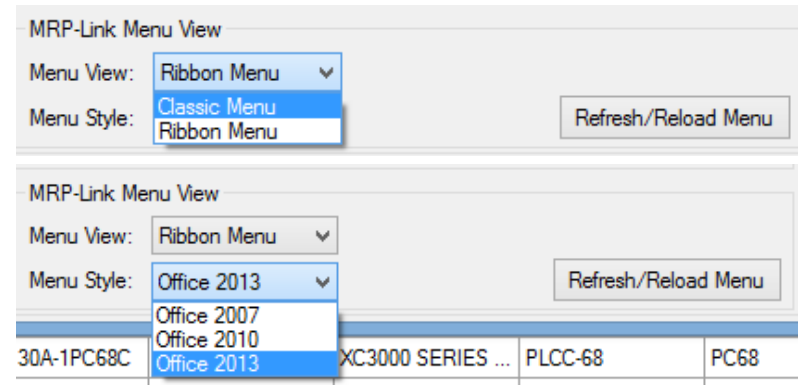
Parts Stock / Primary Source Synchronize Function



Limited access rights = limited view



Online change between
Classic Menu View
&
Ribbon Menu View
with different office styles.



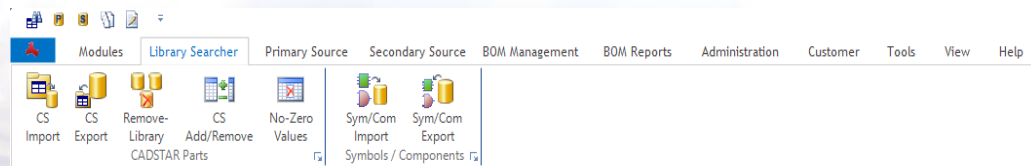
Office 2007



Office 2010



Office 2013

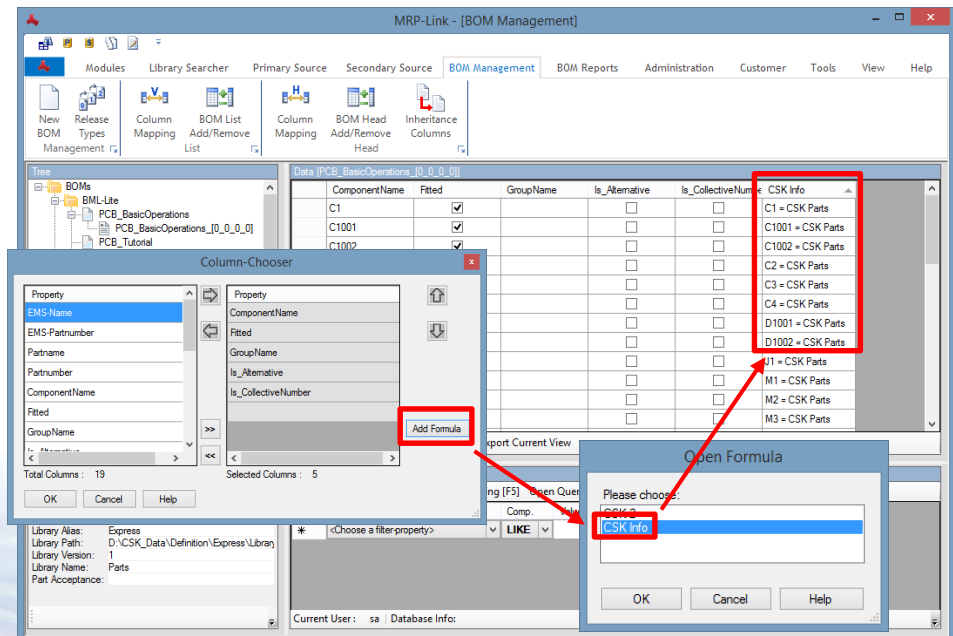
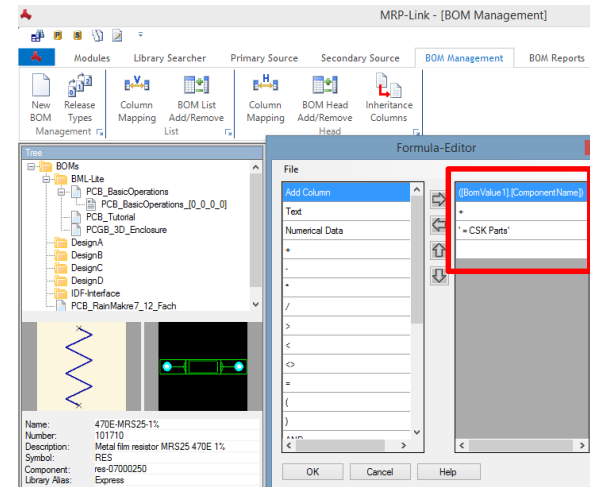


Functions in detail: Formular Editor

Work with virtual columns in your spread view to:

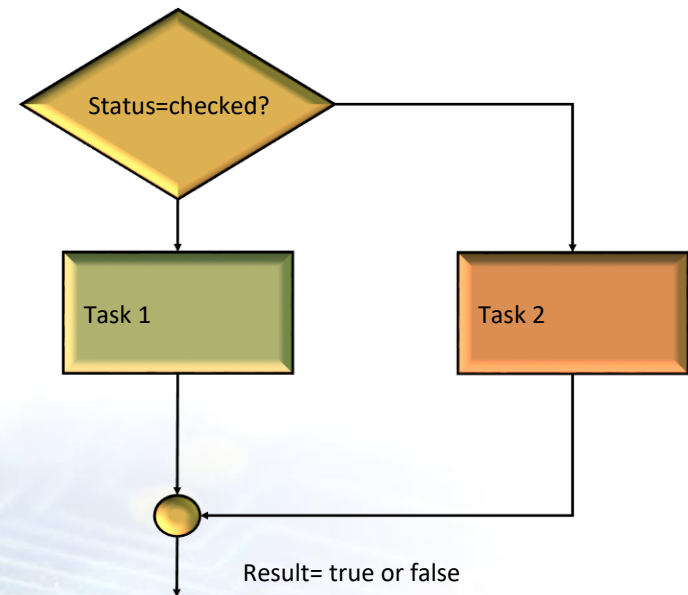
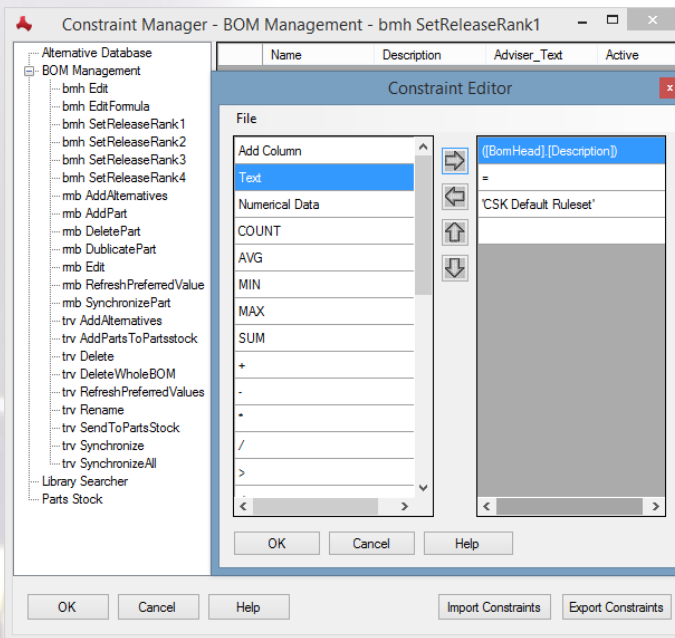
- Calculate
- Merge column values
- Create virtual values
- Add to BOMs, Parts Stock and BOM-Heads
- Realized with SQL aggregate function

Add a formula base column like a real physical column into your personal view.



Key functions:

- Assign company workflows into MRP-Link
- Define individual rules based on companies requirements
- Add rules to user actions
- Easy adapting of rules when workflows have to be altered



MRP-Link - Constraint Manager

The BOM should be released, but only if all Parts have the status “Approved”. This will be controlled with a user defined constraint.

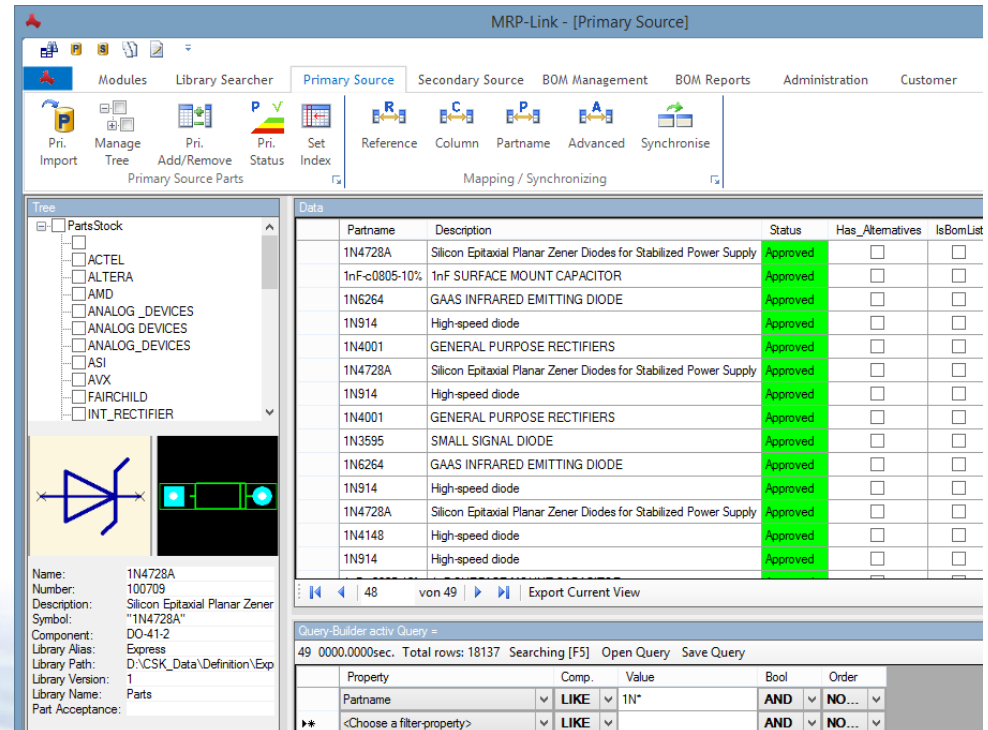
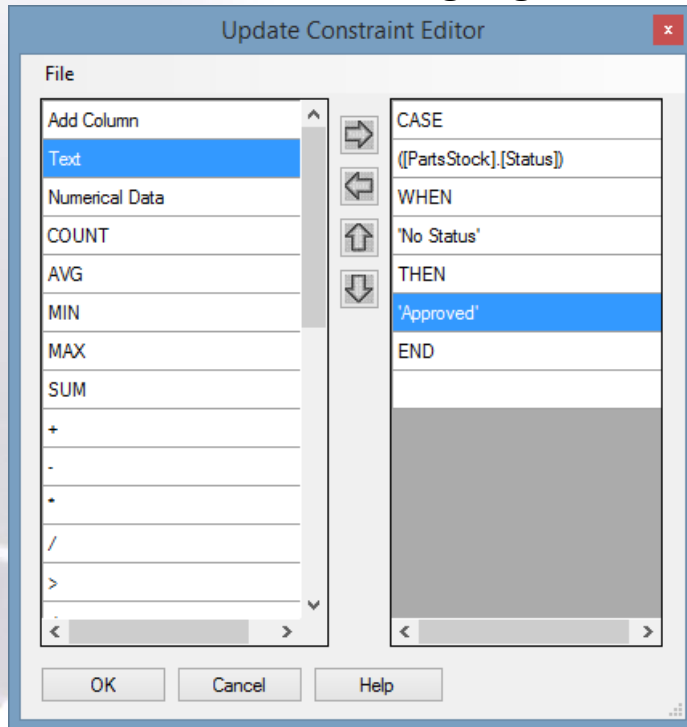
The screenshot displays the MRP-Link - [BOM Management] interface. The main window shows a tree view of BOMs on the left, a data table in the center, and a properties panel at the bottom. The data table lists components with names like M4, P2, U1, TR1003, C2, R4, C1, J1, C4, R1005, D1001, and C3. A 'BOM-Head [PCB_BasicOperations_[0_0_0_0]]' dialog is open, showing fields for Name, Major/Minor/Build/Revision, Date, User, and Release Type. An 'Edit' dialog is also open, prompting the user to select a new value for the status, with options: Approved, Prototype, No new developments, and Not approved. A third dialog, 'MRP-Link', displays an error message: 'Updating status failed. Please control all stati from B.O.M. parts. Note: B.O.M status can't be higher than the lowest part status.'

The check will be done after the “Edit Function”. If the result will break the constraint rule, a customized Adviser Message will appear.

Update Constraint Manager

Key functions:

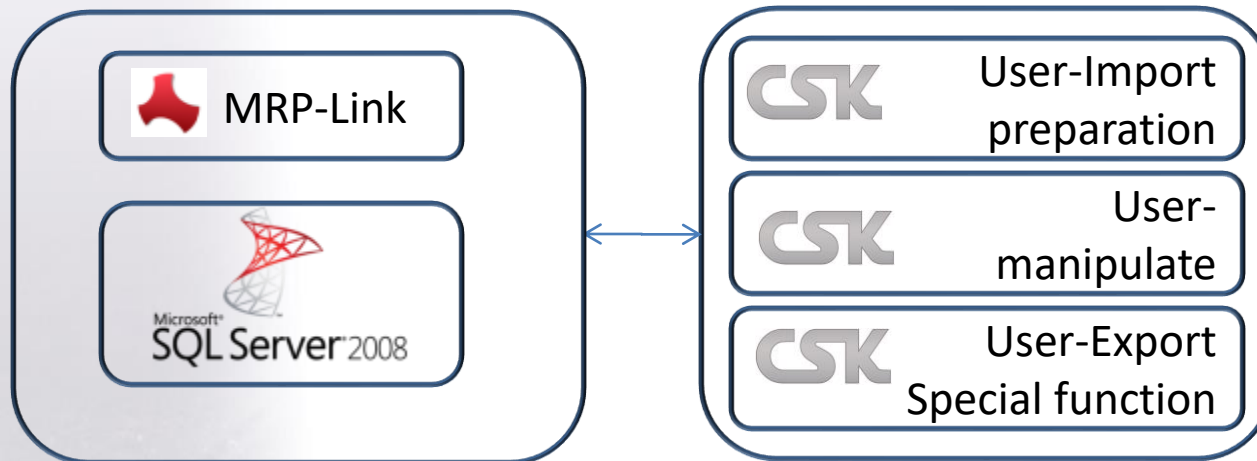
- Assign company workflows into MRP-Link
- Define individual rules based on companies requirements
- Update rule based columns with calculated values
- Based on T-SQL language with additional functions



MRP-Link offers you the opportunity to carry out fully automated internal processes.

With a new interface, which is disclosed to you.

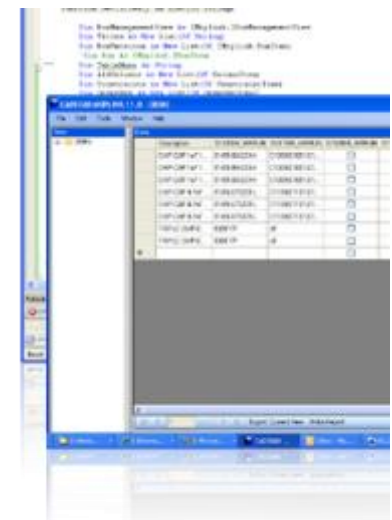
You get the option from MRP-Link to integrate your own developed programs and run them as automated processes.



We will program individual routines as service, too.

The customer will get the source code of "customer.Class."

The user rights belong to the whole "customer.Class." and not to the MRP-Link toolkit.

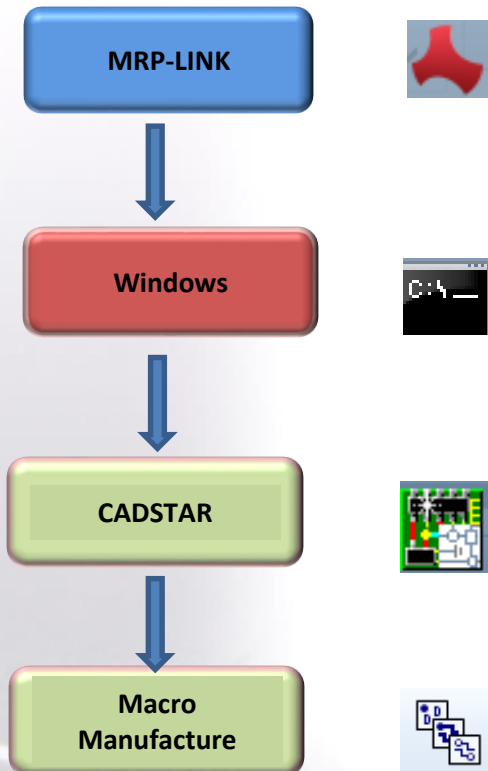


Is to be programmed with Visual Studio.



SQL-Server is not part of MRP-Link

CADSTAR and a lot of other software programs are able to work with an enhanced CMD command line with parameters.



Example of a batch file with CMD command for CADSTAR:
REM BATCH file to start from CADSTAR

```
call "C:\Program Files (x86)\Zuken\CADSTAR  
15.0\Programs\cadstar.exe"
```

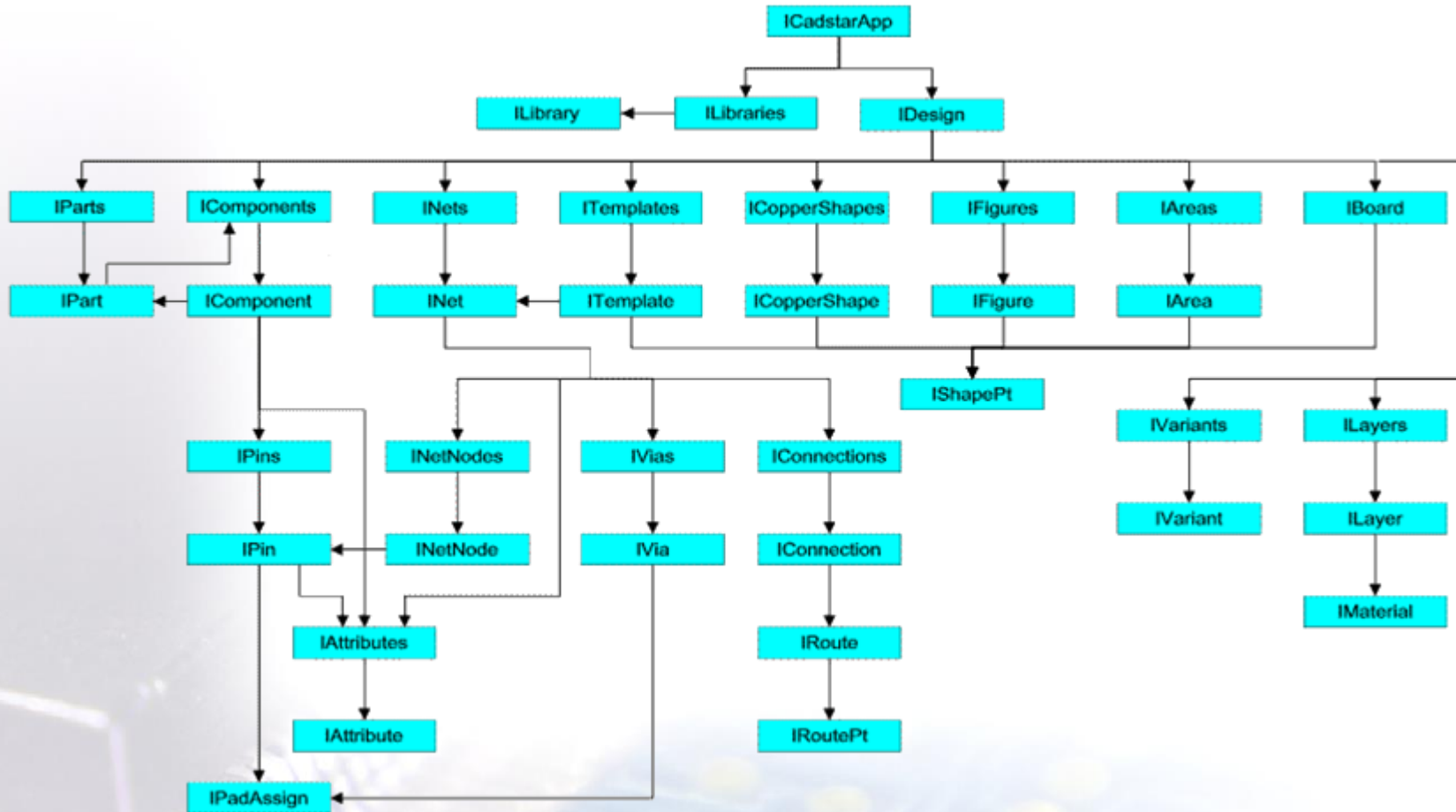
```
"D:\CSK_Hotline\2014\Zuken_CS15\CADSTAR_Projekte\Jo  
b_1\EXPRESS_Example1.pcb,,
```

```
-E:Auto_PDP
```

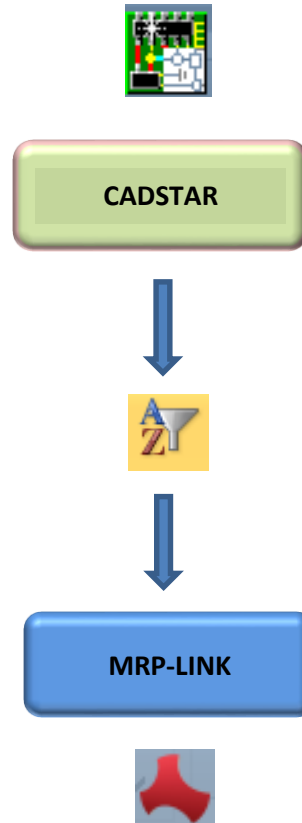
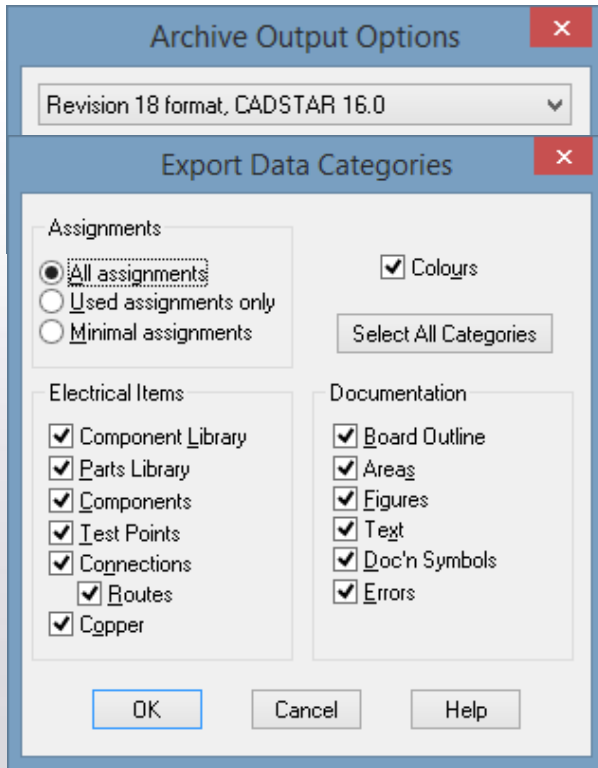
Just to create current valid set of manufacturing data. In PLM system we often use the name "HOOK Command" instead of CMD line command.

Communication via Object Linking and Embedding (OLE)

Most of the communication between the MRP-Link and CADSTAR is realized via the OLE function or combination of several functions.



Communication via csa/cpa and/or OLE Functions



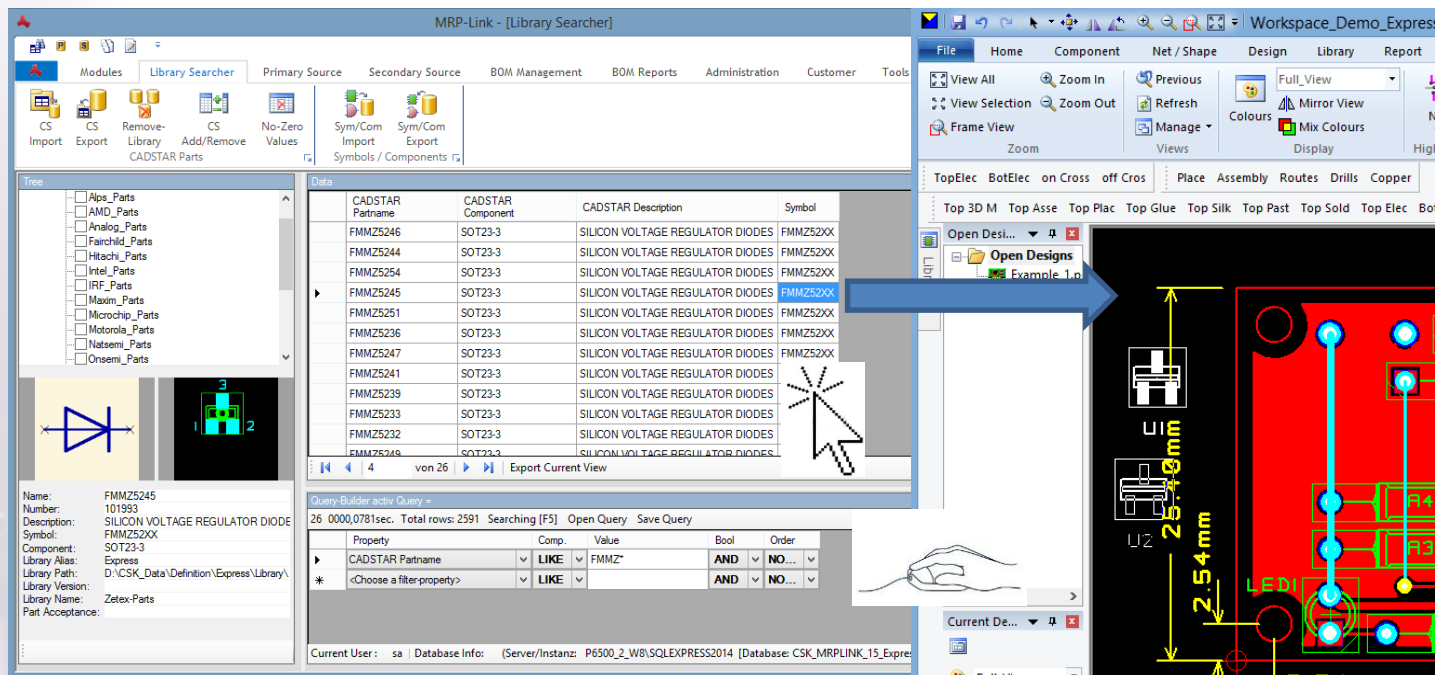
If there is no OLE function available to get any specified information from the design, then MRP-Link uses simple OLE Archive Outputs with the filter option.

In a second step all necessary information will be collected with an intelligent parser together.

With the third step the user is able to work with this information inside the MRP-Link tools.

Communication via Drag & Drop

After finding a part, it is possible to use Drag & Drop inside the SQL Client and move this part directly into the CADSTAR screen. Realized with Windows API functional and OLE functions.



Communication via CMD Line and OLE Functions

Import-Schema

New schema

Existing schema

Csv with Columnnames Yes No

DelimitedStyle

Delimited Fixed Length

Delimiter

Comma Semicolon Pipe Other

Qualifier

Qualifier = " No qualifier Other

Decimal-Symbol **Max Rowlength**

Default-Datatype

New table Existing table

Update Replace

Please select unique-fields:

Your reference/index-fields:

Partname

Delete old Rows

MRP-Link - [Library Searcher]

Modules Library Searcher Primary Source Secondary Source BOM Management BOM Reports Administration Customer Tools View Help

CS Import CS Export Remove-Library Add/Remove CADSTAR Parts No-Zero Values Sym/Com Import Sym/Com Export Symbols / Components

Tree

- Alps_Parts
- AMD_Parts
- Analog_Parts
- Fairchild_Parts
- Hitachi_Parts
- Intel_Parts
- IRF_Parts
- Maxim_Parts
- Microchip_Parts
- Motorola_Parts
- Mitsumi_Parts
- Onsemi_Parts

Data

CADSTAR Partname	CADSTAR Component	CADSTAR Description	Symbol	Value
PIC16C77404PT	TQFP-44	28/40-Pin 8-Bit CMOS Microcontroller ...	PIC16C774-PQ-P...	PIC16C77404PT
BSS798	SOT23-3	NPN SILICON PLANAR SWITCHING ...	BSS798	BSS798
RC48F4400P0VT00	BGA-64	StrataFlash	RC48F4400P0V...	RC48F4400P0V...
RC48F4400P0VT00	BGA-64	StrataFlash	RC48F4400P0V...	RC48F4400P0V...
BB824-2	SOT23-3	DUAL VARICAP DIODE	BB824	BB824-2
PIC17CR43T25IPT	TQFP-44	High-Performance 8-Bit CMOS EPROM...	PIC17CR4X-PQ...	PIC17CR43T25IPT
PIC17CR43T25IPT	TQFP-44	High-Performance 8-Bit CMOS EPROM...	PIC17CR4X-PQ...	PIC17CR43T25IPT
ZR78L10G	SOT223-4	2.85 TO 12 VOLT FIXED POSITIVE L...	ZR78LG	ZR78L10G
SN74LS221D	SOIC-16	DUAL MONOSTABLE MULTIVIBRAT...	SN74LS221-G	SN74LS221D
SN74LS221D	SOIC-16	DUAL MONOSTABLE MULTIVIBRAT...	SN74LS221-P	SN74LS221D
ZXT11N15DFTA	SOT23-3	15V NPN SILICON LOW SATURATIO...	ZXT11N15DF	ZXT11N15DFTA
CS51023ED1E	SO-16	ENHANCED CURRENT MODE PWM	CS51023	CS51023ED1E

Name: SN74LS221D
Number: 102036
Description: DUAL MONOSTABLE MULTIVIBR
Symbol: SN74LS221-G
Component: SOIC-16
Library Alias: Express
Library Path: D:\CSK_Data\Definition\Express\L
Library Version: 1
Library Name: Onsemi_Parts
Part Acceptance:

Query-Builder
3500 0000,1250sec. Total rows: 2591 Searching [F5] Open Query Save Query

Property	Comp.	Value	Bool	Order
<Choose a filter-property>	LIKE		AND	NO...

Current User: sa | Database Info:

Alternate-Compone	Component	Description	Partname	Pa
3E	5062_DTSt5P_T...	csk 1.25mm Ptc...	005062301005000	232
Varicon_x0.1in	7022_StgDR_17P	Series 7022 - 0.1...	007022017000001	932
6E	8289_EJSH_St1...	Ejector Style Hea...	008289010002011	232
0254	9155_MOBO_3P	9155 MOBO Batt...	009155003001001	232

Import-Schema

New schema

Existing schema

Csv with Columnnames

Yes No

Delimited Style

Delimited Fixed Length

Delimiter

Comma Semicolon Pipe Other

Qualifier

Qualifier = " No qualifier Other

Decimal-Symbol Max Rowlength

Default-Datatype

New table Existing table

Please select unique fields:

Update Replace

Your reference/index-fields:

Partname

Delete old Rows

The default standard import and export to all other systems is based on CSV-Format.

The system supplies the wide range of conversion options.

All import or export definitions are stored in a schema for reuse during any automatic functions.

Alternate-Compone	Component	Description	Partname	Pa
3E	5062_DTSt5P_T...	csk 1.25mm Pitc...	005062301005000	232
Varicon_x0.1in	7022_StgDR_17P	Series 7022 - 0.1...	007022017000001	932
6E	8289_EJSH_St1...	Ejector Style Hea...	008289010002011	232
0254	9155_MOBO_3P	9155 MOBO Batt...	009155003001001	232

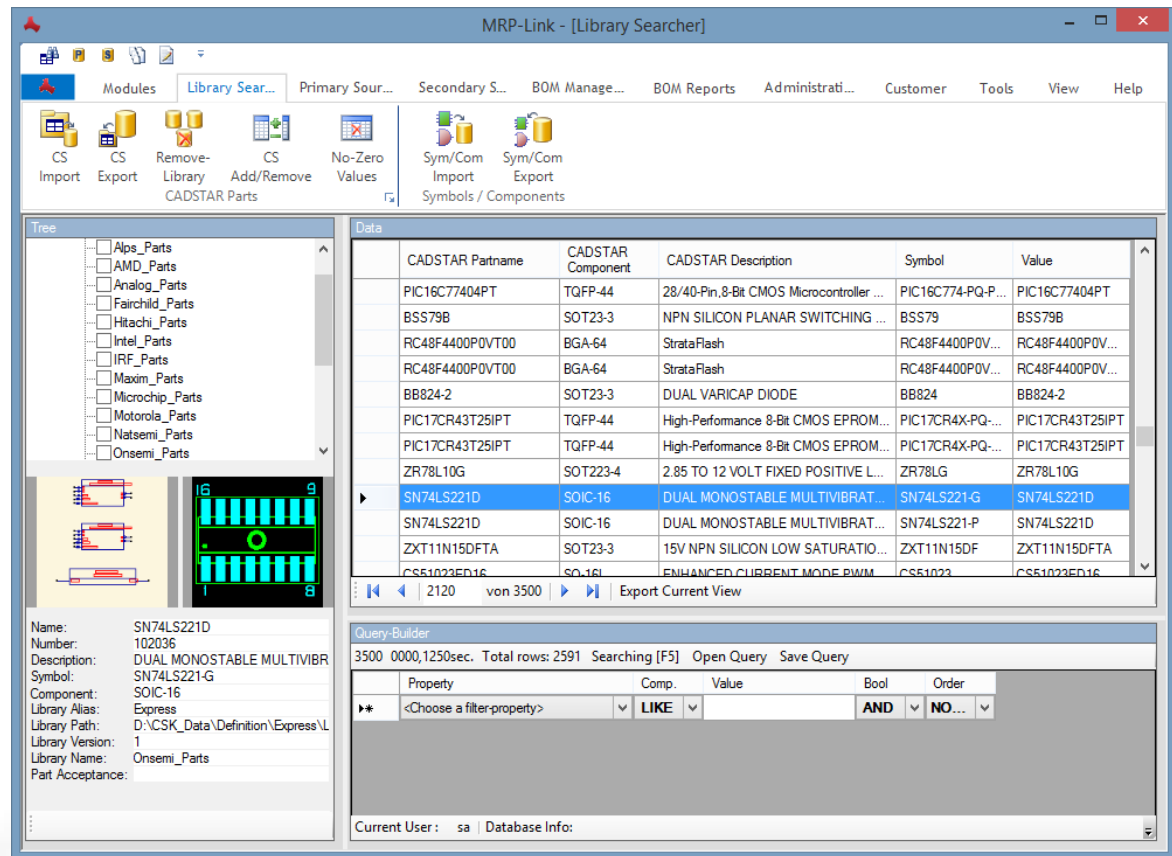
Synchronize MRP-Link & CADSTAR with ERP-DATA in less than 2 minutes.

Synchronize in only three steps:

1. Update Parts Stock with ERP-Data
2. Synchronize Library Searcher
3. Export to CADSTAR

New:

Synchronize in only one step with MRP-Link Batch Processing



CADSTAR Partname	CADSTAR Component	CADSTAR Description	Symbol	Value
PIC16C77404PT	TQFP-44	28/40-Pin, 8-Bit CMOS Microcontroller ...	PIC16C774-PQ-P...	PIC16C77404PT
BSS79B	SOT23-3	NPN SILICON PLANAR SWITCHING ...	BSS79	BSS79B
RC48F4400P0VT00	BGA-64	StrataFlash	RC48F4400P0V...	RC48F4400P0V...
RC48F4400P0VT00	BGA-64	StrataFlash	RC48F4400P0V...	RC48F4400P0V...
BB824-2	SOT23-3	DUAL VARICAP DIODE	BB824	BB824-2
PIC17CR43T25IPT	TQFP-44	High-Performance 8-Bit CMOS EPROM...	PIC17CR4X-PQ...	PIC17CR43T25IPT
PIC17CR43T25IPT	TQFP-44	High-Performance 8-Bit CMOS EPROM...	PIC17CR4X-PQ...	PIC17CR43T25IPT
ZR78L10G	SOT223-4	2.85 TO 12 VOLT FIXED POSITIVE L...	ZR78LG	ZR78L10G
SN74LS221D	SOIC-16	DUAL MONOSTABLE MULTIVIBRAT...	SN74LS221-G	SN74LS221D
SN74LS221D	SOIC-16	DUAL MONOSTABLE MULTIVIBRAT...	SN74LS221-P	SN74LS221D
ZXT11N15DFTA	SOT23-3	15V NPN SILICON LOW SATURATIO...	ZXT11N15DF	ZXT11N15DFTA
CS51023ED16	SO-16	ENHANCED CURRENT MODE PWM	CS51023	CS51023ED16

Query-Builder
 3500 0000,1250sec. Total rows: 2591 Searching [F5] Open Query Save Query

Property	Comp.	Value	Bool	Order
<Choose a filter-property>	LIKE		AND	NO...

Current User: sa | Database Info:

MRP-Link



Microsoft Dynamics
NAV

SAP

PTC

Windchill

RFC Remote Procedure Call

CS TBL OLE Functions

CSV TXT or XML File Format

CMD Command Line Functions

Microsoft SQL Server



Necessary communication requirements

MRP-Link



???



???



???



?RFC Remote Procedure Call?

Microsoft SQL Server

Microsoft Dynamics
NAV

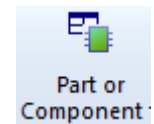
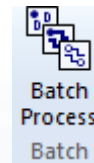
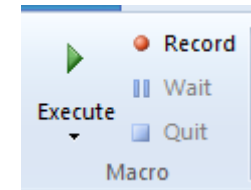
SAP

PTC

Windchill



- Schematic Symbols
- PCB Components
- Parts Documentation Symbols



CSK MRP-Link
Official German Distributor

Für Rückfragen und weitere Informationen
steht Ihnen das CSK Team gerne zur Verfügung.

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