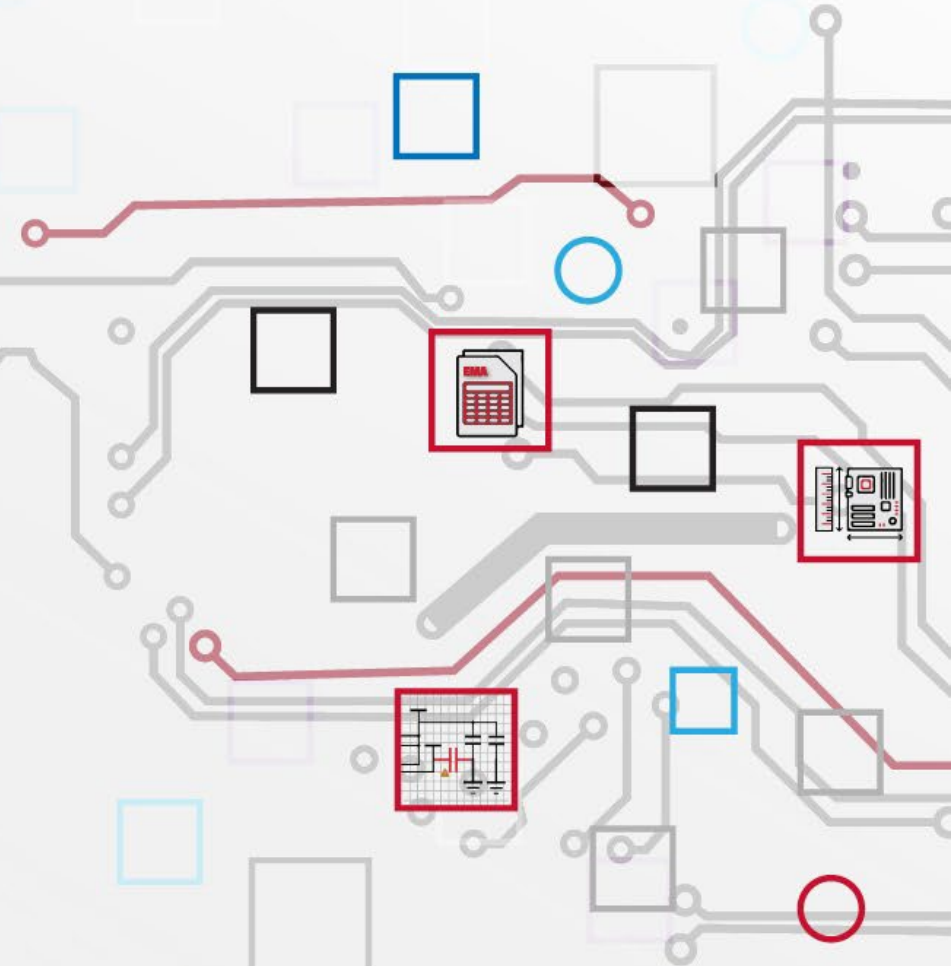# Introduction to OrCAD X CIS

Presented by: Roger Chin
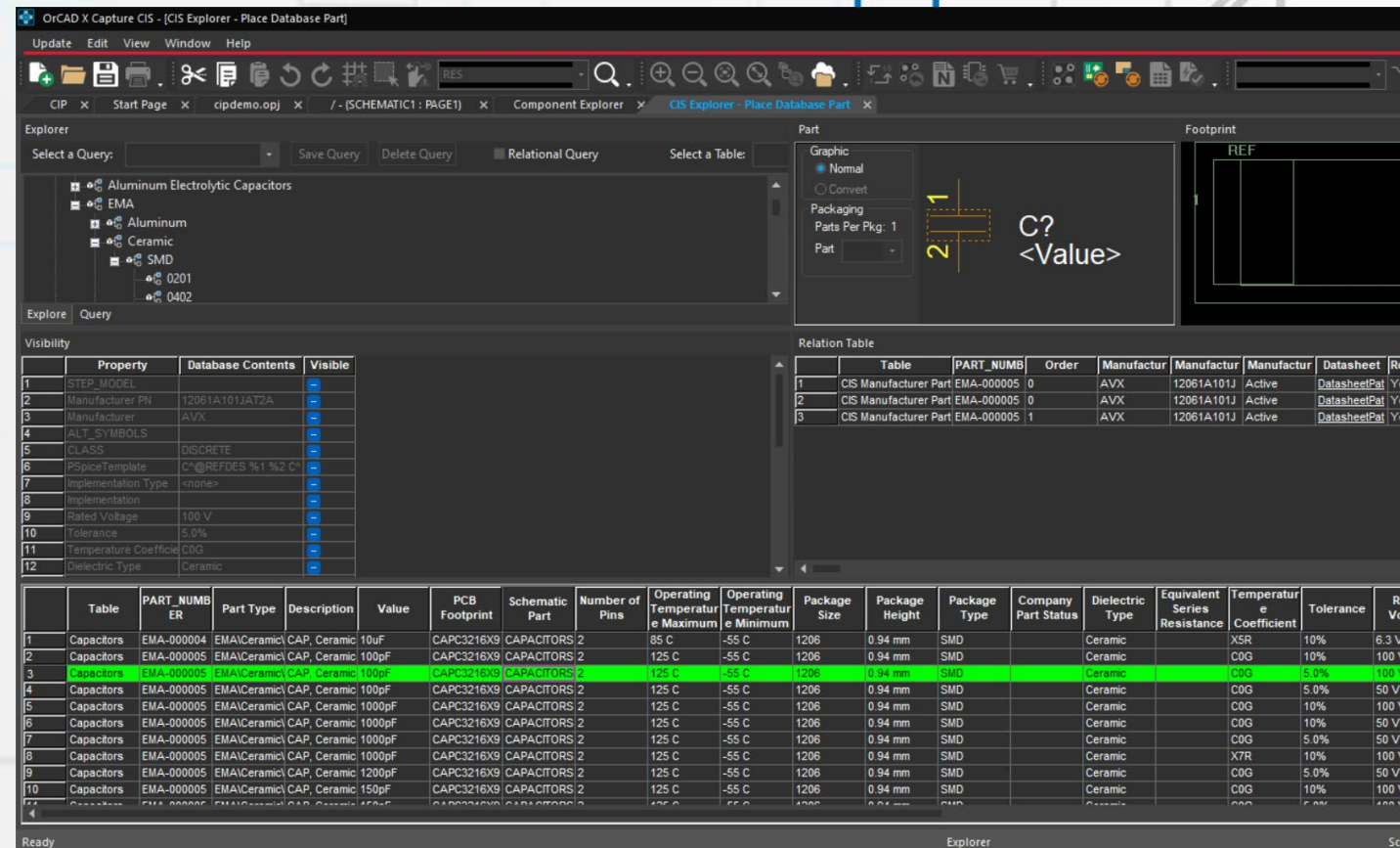
Now Included In OrCAD X

CIS = Component Information System

CIS allows OrCAD to access a central database to:

- Organize and coordinate the part placement process
- Provides access to parametric and MFR data
- Streamlines searching and sorting

Centralized Library
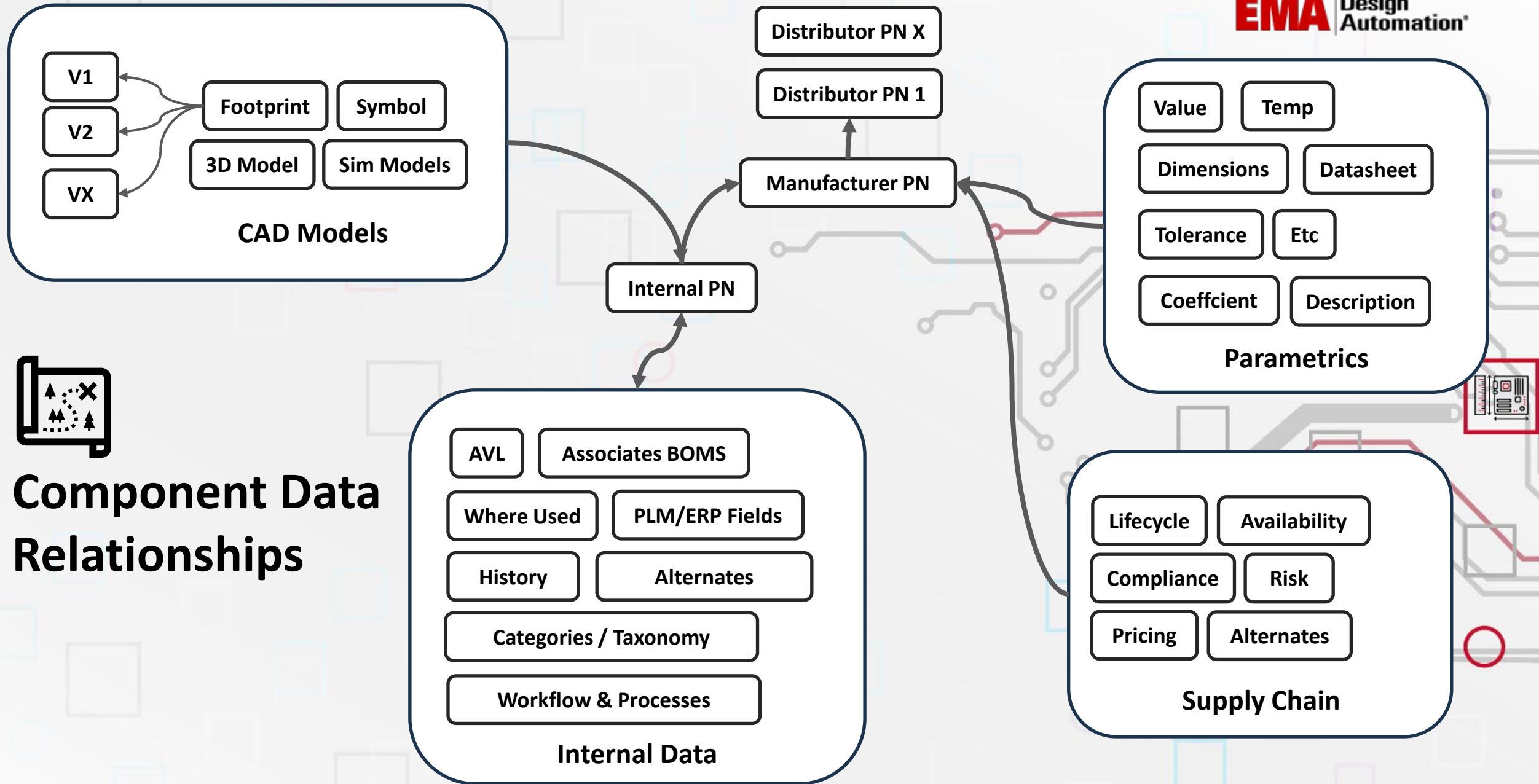
With a centralized library you can:

- Improve efficiency

- Promote reuse

- Implement supply chain resilience

- Automate BOM generation

- Connect with data sources (internal/external)

Capability	Individual Files	CIS
Data Reuse	None/Manual	Yes
Library Sharing	Error Prone Manual	Yes (automated)
Supply Chain data	Manual (properties on each symbol)	Reusable fields in database
Data Consistency	No (each engineer names their files)	Yes (based on schema)
Parametric Search	No	Yes
Alt Part Support	No	Yes
Variant Support	Manual	Yes
BOM Templates	No	Yes
Connect with enterprise systems (PLM, MRP, ERP)	No	Yes

CIS UI

Component Data Relationships

CAD Models
- V1
- V2
- VX
- Footprint
- Symbol
- 3D Model
- Sim Models

Distributor PN X

Distributor PN 1

Manufacturer PN

Internal PN

Parametrics
- Value
- Temp
- Dimensions
- Datasheet
- Tolerance
- Etc
- Coeffcient
- Description

Internal Data
- AVL
- Associates BOMS
- Where Used
- PLM/ERP Fields
- History
- Alternates
- Categories / Taxonomy
- Workflow & Processes

Supply Chain
- Lifecycle
- Availability
- Compliance
- Risk
- Pricing
- Alternates

EMA | Design Automation®
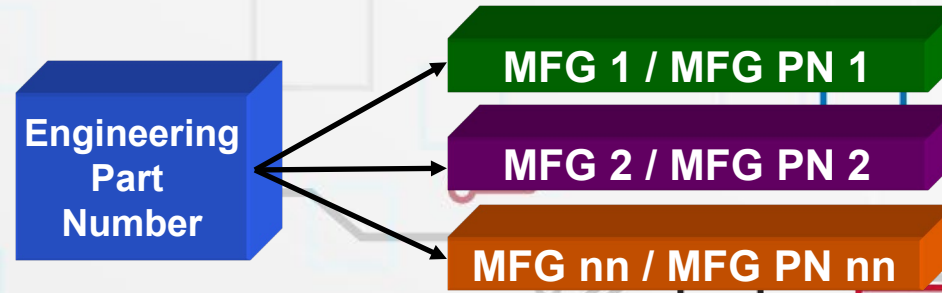
Relational Database

Supports a one-to-many database relationship between part information tables and related tables

Explorer Window
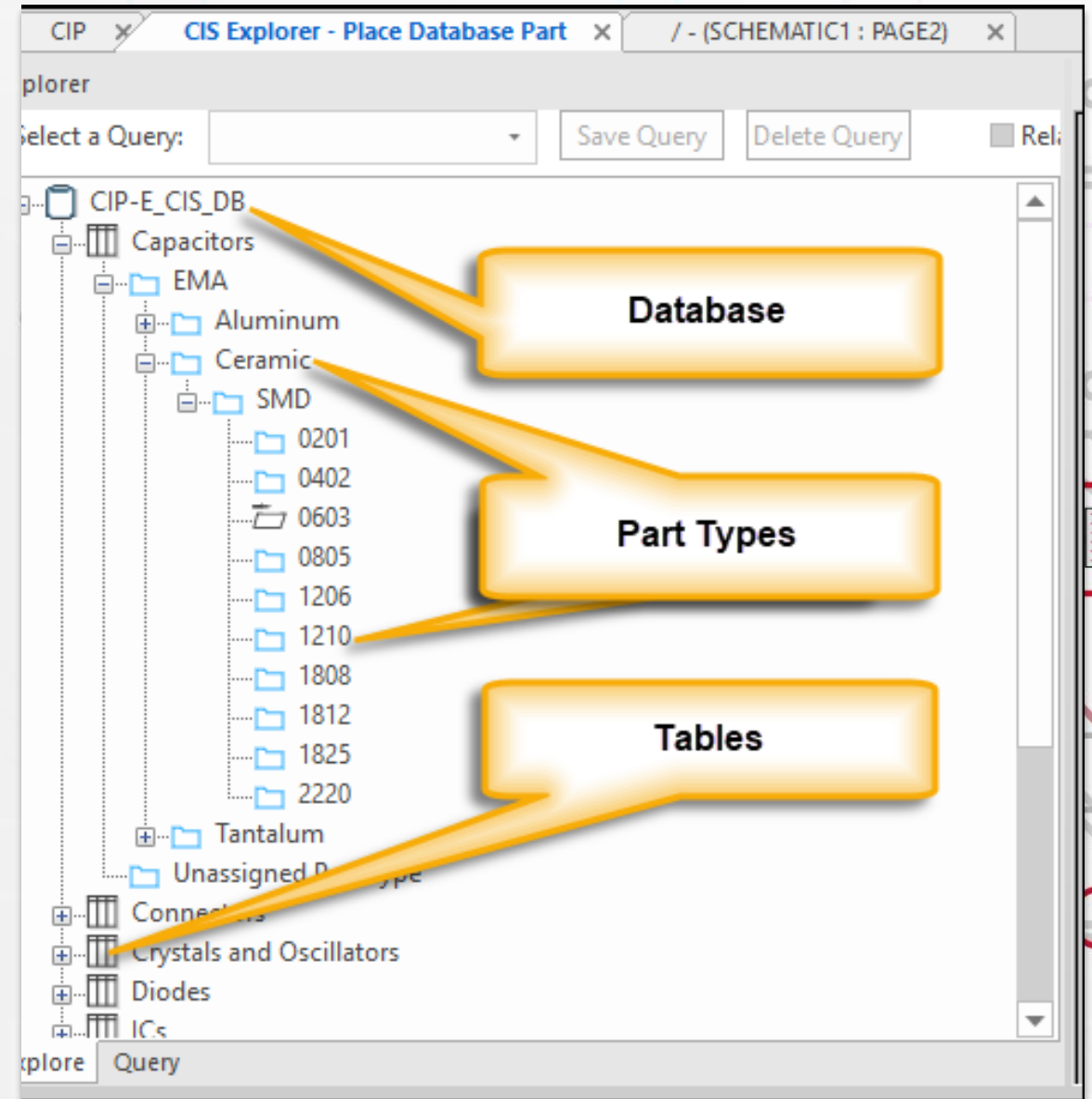
Contains two tabs:

Explore – navigate through tables and sub tables

Query – search and sort based on parametric data

Explorer Window

Query tab

- Provides an efficient way to find parts
- Returns a list of parts based on the search criteria
- Three configurations for search – Property, Compare, and Value
- Allows for multiple conditions searched together
- Save queries for future reuse
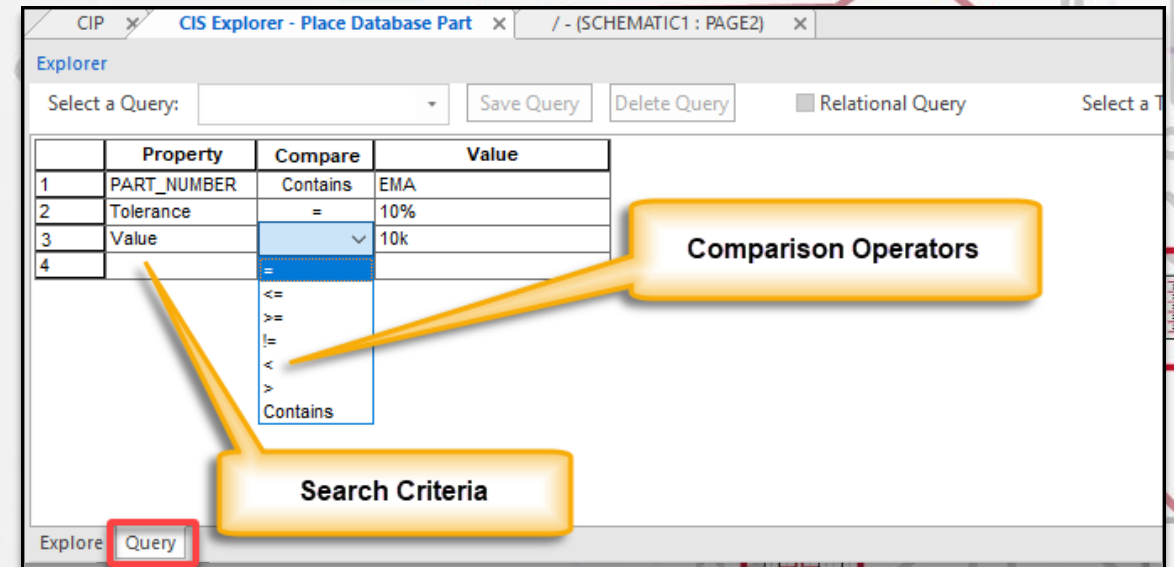
CIS Part Manager Bulk Operations

Ensures design is in sync with your component database

- Uses your Part Number field to check each symbol against its current database state.
- Any differences between the schematic parts and its database properties are flagged.
- You have the option to update each symbol to match the database or to leave as is.
- Can check if symbol in cache is outdated compared to source library

The Link Database Part command allows you to swap out part data for multiple symbols without touching the schematic

Placed Part Status

Part manager keeps track of part status and synchronization to ensure current data is used

Status Dot Color	Placed Status Part	Description
🟢	Approved: Current	The part number property value on the plac matches the database part, and all of the tran properties match
🟡	Approved: Defined	The placed part has a defined part number p but it has not yet been checked against the c part
🟡	Approved: Undefined part reference	The placed part has an undefined part referer (such as "R?")
🟡	Temporary: Current	The placed part has temporary part number a transferrable properties match the databas
🟡	Temporary: Defined	The placed part has a temporary part numbe has not yet been checked against the datab
🔴	Approved: Package out of date	The symbol in the schematic does not mat symbol in the database
🔴	Approved: Not Current	A part number property exists in the database or more of the transferrable properties o schematic symbol do not match the databa
🔴	Approved: Duplicate	The part number on the placed part occurs m once in the parts database. This status only your configuration file does not allow duplica numbers
🔴	Approved: Not Found	The part number property on the placed part exist in the parts database
🔴	Undefined	The placed part does not have a part number
🔴	Temporary: Not Current	One or more of the transferrable properties schematic symbol on the temporary part d match the database part
🔴	Temporary: Duplicate	This status only occurs if you intentionally du temporary part number
🔴	Temporary: Not Found	The part number property valuie on the p temporary part does not exist in the parts d

11/13/2024

Bill of Materials (BOM)

Create report templates for different manufacturing and engineering requirements

Relational data, such as

- multiple manufacturing numbers,
- Distributor identification
- costs
- Create BOMs for variants

CIS BOM Template

Item Number	PART_NUMBER	Part Reference	Quantity	Value	Description	CIS Manufacturer Parts : Manufacturer	CIS Manufacturer Parts : Manufacturer PN	CIS Manufacturer Parts : Distributor	CIS Manufacturer Parts : Distributor PN
1	EMA-00000491V22	C1	1	100pF	CAP, Ceramic, SMD, 100 pF, 10 %, 50 V, 0603	AVX	06035A101KAT2A	Digi-Key	478-3717-2-ND
						AVX	06035A101KAT2A	SiliconExpert	24623444
2	EMA-00000401	C2 C3 C6	3	0.1uF	CAP, Ceramic, SMD, 0.1 uF, 5.0 %, 16 V, 0603	AVX	0603YC104JAT9A	SiliconExpert	47980510
						AVX	0603YC104JAT4A	SiliconExpert	24626736
						AVX	0603YC104JAT2A	SiliconExpert	24813811
3	EMA-00000517	C4 C5	2	100uF	CAP, Tantalum, SMD, 100 uF, 10 %, 6.3 V, 6032-28	AVX	TPSC107K006S0150	Digi-Key	478-1764-2-ND
						AVX	TPSC107K006S0150	SiliconExpert	60523358
						AVX	TPSC107K006R0150	Digi-Key	478-1764-2-ND
4	EMA-00000405V22	C7 C8 C9 C10 C11 C12 C13 C1	8	0.1uF	CAP, Ceramic, SMD, 0.1 uF, 10 %, 50 V, 0805	AVX	08055C104KA74A	SiliconExpert	42983039
						AVX	08055C104KA72A	SiliconExpert	24598764
5	EMA-00005995	J2	1	15-24-7240	CONN, Header, 15-24-7240, 24, TH	Molex Inc	15-24-7240	Digi-Key	WM1025-ND
						Molex Inc	15-24-7240	SiliconExpert	46298256
6	EMA-00006083V22	P1	1	53261-0819	CONN, Header, 53261-0819, 8, SMD	Molex Inc	53261-0819	SiliconExpert	50153492
7	EMA-00002890V22	R1 R2 R3 R4	4	41.2kOhm	RES, Thin Film, 41.2 kOhm, 0.1 %, 1/16 W, SMD, 0603	Koa Speer	RN731JTTDD4122B25	SiliconExpert	36027643
						Koa Speer	RN731JTTD4122B25	SiliconExpert	26988139
8	EMA-00007180V22	U2	1	27C801	IC, Memory Devices, EEPROM, 27C801, PLCC-32	STMicroelectronics	M27C801-100K1	SiliconExpert	18763305
9	EMA-00007402	U3	1	XC18V01	IC, Memory Devices, PROM, XC18V01, SOIC-20	Xilinx	XC18V01SOG20C	SiliconExpert	19400039
						Xilinx	XC18V01SOG20C	Digi-Key	122-1464-ND
10	EMA-00006523	U4	1	EPCS4	IC, Programmable Devices, Config Device, EPCS4, SOIC-8	Altera Corporation	EPCS4SI8N	SiliconExpert	21883537
						Altera Corporation	EPCS4SI8N	Digi-Key	544-1379-5-ND
						Altera_Corporation	EPCS4SI8N	Digi-Key	544-1379-5-ND
11	EMA-00006788V22	U5	1	LT1763	IC, Voltage Regulator, Linear-LDO, LT1763, SOIC-8	Linear Technology	LT1763CS8-3#TRPBF	Digi-Key	LT1763CS8-3#TRPBF-ND
						Linear Technology	LT1763CS8-3#TRPBF	SiliconExpert	19924516
						Linear Technology	LT1763CS8-3#PBF	SiliconExpert	20092587

Design Variants

- Variants are different assembly configurations of the core design
- Use Part Manager to create and maintain variants

CIS manages design variants in the Part Manager. Core design parts are shown when clicking on the top folder in the folder view. The list view reflects the core part values and core part numbers.

Variant Parts

Viewing Variants

- Use the Variant View Mode to display variant information on a schematic page

- Customize variant colors in the Capture Preferences

Variant parts can be seen in the schematic by selecting *View > Variant View Mode*, then selecting the variant name from the list.

Appearance of "do not stuff" parts or parts with variant values can be changed in the *Options > Preferences* menu.
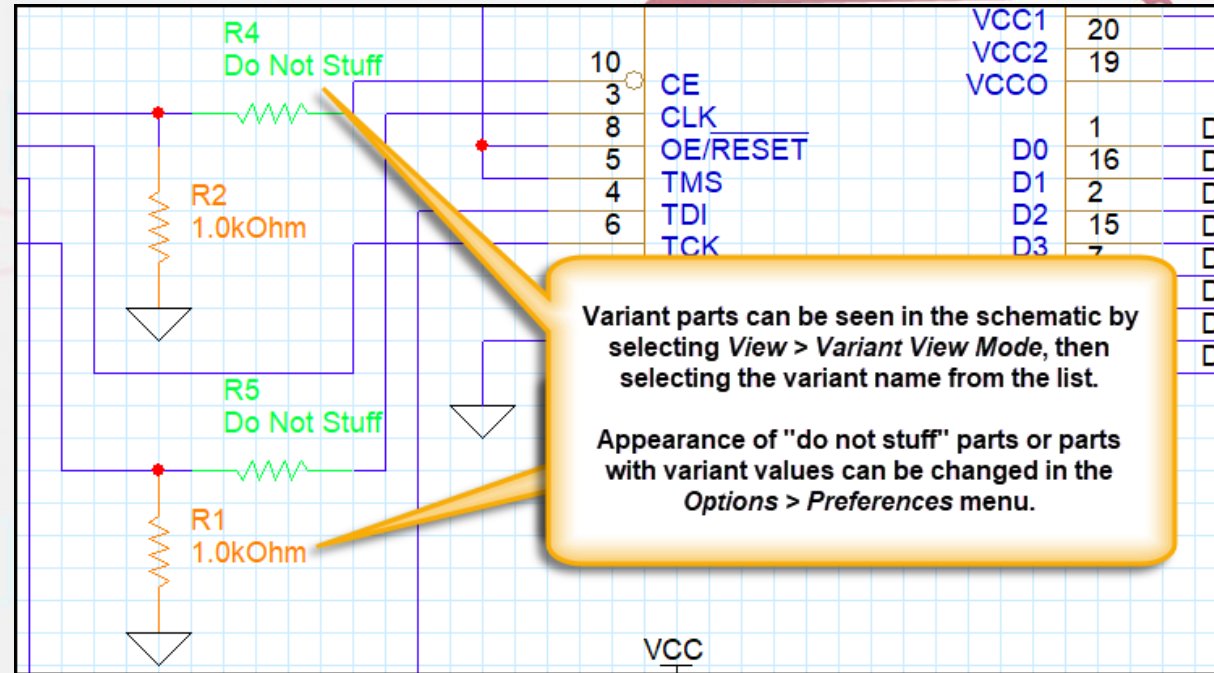
Variant Reports

- Variant BOM shows the core design part numbers and their variants

- Here, R4 and R5 are *Do Not Stuff* on the variant, and R1 and R2 have a different value and part number

	CIP ×	Start Page ×	VARIANTS.VRT* ×			

Capture CIS - Variant Report
Report Created on Friday Apr 24 07:00:58 2020

Item Number	Part Reference	<Core Design>	NV	PART_NUMBER	Value	PCB Footpr
8	C8	EMA-00000403				
9	C9	EMA-00000403				
10	C10	EMA-00000403				
11	C11	EMA-00000403				
12	C12	EMA-00000403				
13	C13	EMA-00000403				
14	C14	EMA-00000403				
15	J2	EMA-00006006				
16	J3	EMA-00005995				
17	R1	EMA-00003690	EMA-00002609V22	[EMA-00003690] EMA-00002609V22	[4.75kOhm] 1.0kOhm	RESC1608X
18	R2	EMA-00003690	EMA-00002609V22	[EMA-00003690] EMA-00002609V22	[4.75kOhm] 1.0kOhm	RESC1608X
19	R4	EMA-00003600	Do Not Stuff	Do Not Stuff	Do Not Stuff	Do Not Stu
20	R5	EMA-00003600	Do Not Stuff	Do Not Stuff	Do Not Stuff	Do Not Stu
21	U1	EMA-00006786				
22	U4	EMA-00007402				
23	U5	EMA-00007179				
24	U6	EMA-00006523				

What About the Actual Database?

CIS opens up a whole new world connected to one standardized central database, **but** CIS is itself not an actual database

| Capability	Individual Files	CIS
Data Reuse	**None/Manual**	**Yes**
Library Sharing	**Error Prone Manual**	**Yes (automated)**
Supply Chain data	**Manual (properties on each symbol)**	**Reusable fields in database**
Data Consistency	**No (each engineer names their files)**	**Yes (based on schema)**
Parametric Search	**No**	**Yes**
Alt Part Support	**No**	**Yes**
Variant Support	**Manual**	**Yes**
BOM Templates	**No**	**Yes**
Connect with enterprise systems (PLM, MRP, ERP)	**No**	**Yes**

Database Setup Considerations

Setting up a database schema of tables and fields is no trivial task and requires:

- Creating tables and subtables (called Part Types in CIS)
- Setting up field names per table
- Determining which field need to map to schematic

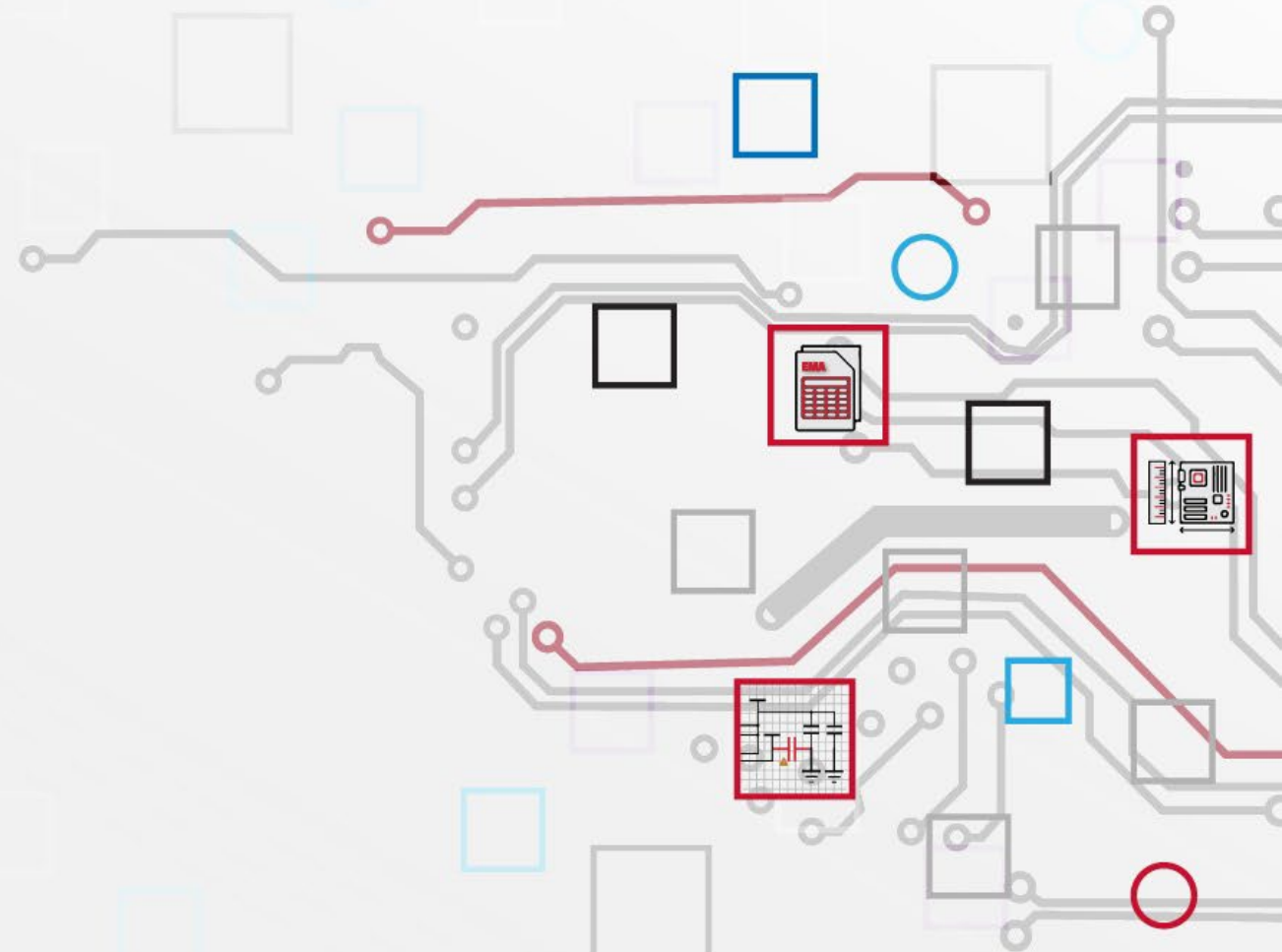| Capability	OrCAD X CIS
Setup	Required
Making Updates / Changes	Difficult / Manual (done in Access, SQL, etc)
Data Tracking / History	Manual
Schema	User must define schema
Role Management	None
Change Notifications	Manual
Direct access to part distributor parametric data	Manual update required
Connect with enterprise systems (PLM, MRP, ERP)	Manual
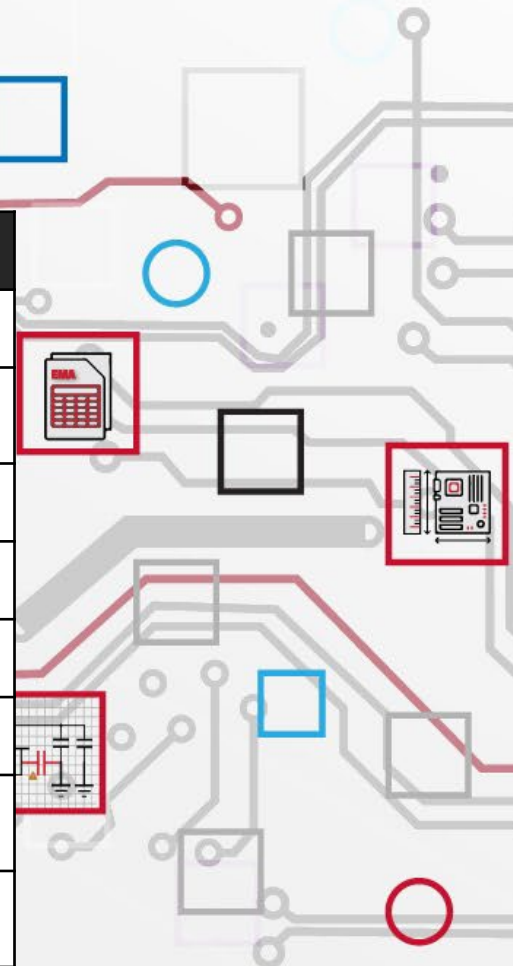
Database Setup Considerations

OrCAD CIP was designed to help automate these processes and add additional capabilities leveraging your managed data.

Capability	OrCAD X CIS	OrCAD X CIP
Setup	Required	Minimal (automated configuration)
Making Updates / Changes	Manual (done in Access, SQL, etc)	Easy/Automated (web-based forms)
Data Tracking / History	Manual	Automated
Schema	User must define schema	Standard schema provided
Role Management	None	Yes
Change Notifications	Manual	Yes
Direct access to part distributor parametric data	Manual update required	Automated
Connect with enterprise systems (PLM, MRP, ERP)	Manual	Automatable

Demo

Thank You