



# VX.2.7 Xpedition Enterprise Release Content

December 11, 2019

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# Xpedition Designer

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- Designer to support EDX file input from PQ
- Drag-and-drop from PartQuest
  - Drag-and-drop EDX from PQ to Search and load into Project Library
    - Place new part from Search
- Import multiple parts from PartQuest
  - Bulk import multiple parts downloaded from PartQuest



# UI and Usability Improvements

## ■ Separate Grid snapping/ Grid display buttons

- Enables independent control of grid display/snap
- Grid Display added to Display Control

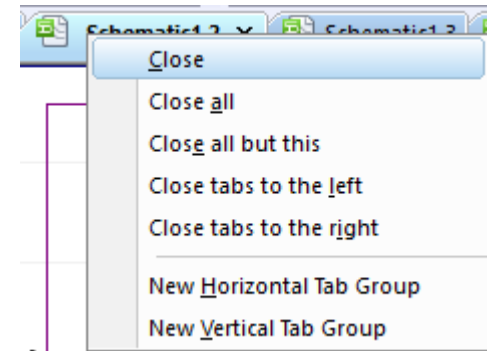
- IDEA - <https://communities.mentor.com/ideas/8732>



## ■ Better Tab management

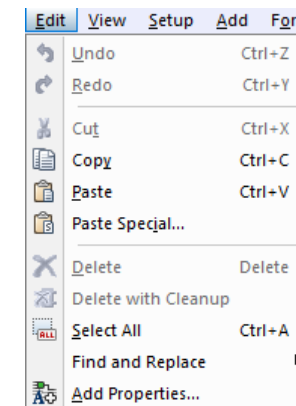
- Similar to web browsers
- Close Tabs to right/left/all except/all
- IDEA -

- <https://communities.mentor.com/ideas/16609>



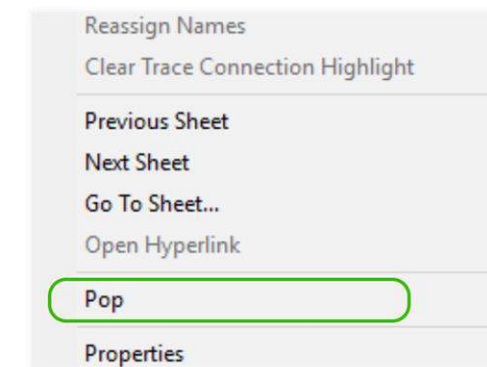
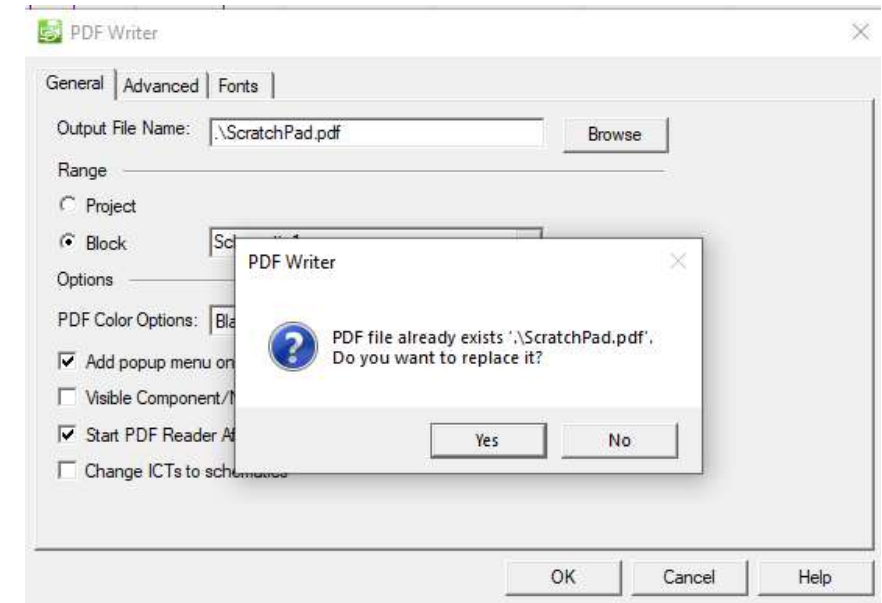
## ■ Rationalized shortcuts

- New shortcut bindings files to reduce redundancy/legacy
- Aligns to Xpedition Layout and industry standards



# UI and Usability Improvements (cont'd)

- Warn when overriding PDF
  - IDEA - <https://communities.mentor.com/ideas/10654>
- Pop command on context menu
  - IDEA - <https://communities.mentor.com/ideas/19358>



# DRC Checks to use Schematic-level Pin Type

- DRC will check the pin type from symbol, block and instance level
  - Priority order is Instance/Block/Symbol
  - Supports pin type override from IOPT
  - IDEA - <https://communities.mentor.com/ideas/13586>

# CCE and PDF Export Improvements

- CCE to display excluded parts defined by Forward to PCB = False
- CCE and PDF to support all Designer Line Styles



# Customer Defects Addressed

- 29 assorted customer defects fixed including
  - Performance issues
    - Keyin netlist was taking 50 hours to output. Now takes 30 seconds
    - Changes to Designer API to improve performance.

# Xpedition Layout

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# Performance Improvements

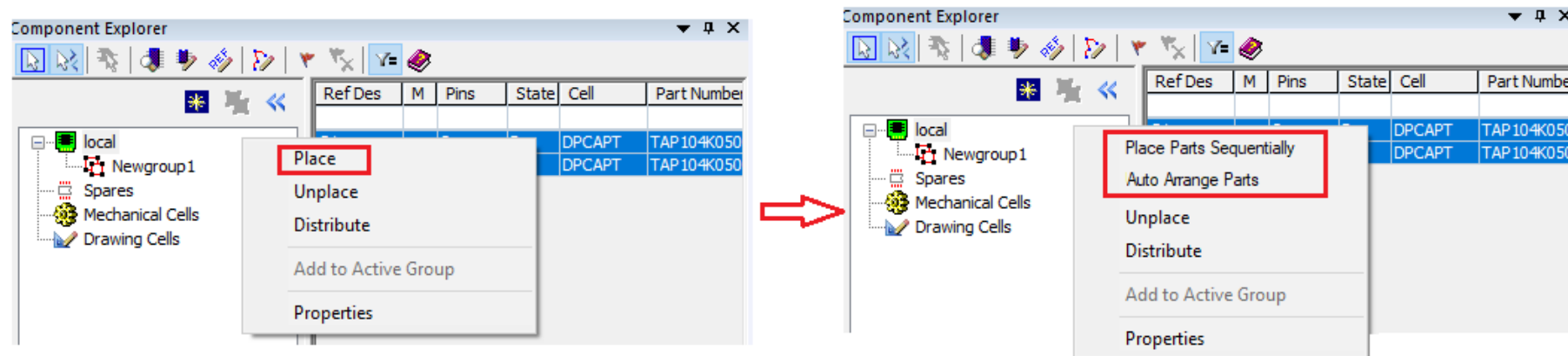
- Dynamove of Traces when Sketch Plans exist in the design is up to 6x faster.
- Deleting traces/vias is up to 5x faster.
- Minimized Component Explorer impact on interactive editing performance due to recalculating the number of opens.

# Clearances on NC Pins

- On power electronics, some components could have pins which are not connected within the PCB board circuitry (no connects) but potentially carry voltage/current. Currently, these pins without nets (NC Pins) do not allow a clearance class to be assigned.
- For VX.2.7 we support defining a Net Class for NC Pins. Both Online and Batch DRC will use these NC Pin clearance overrides.

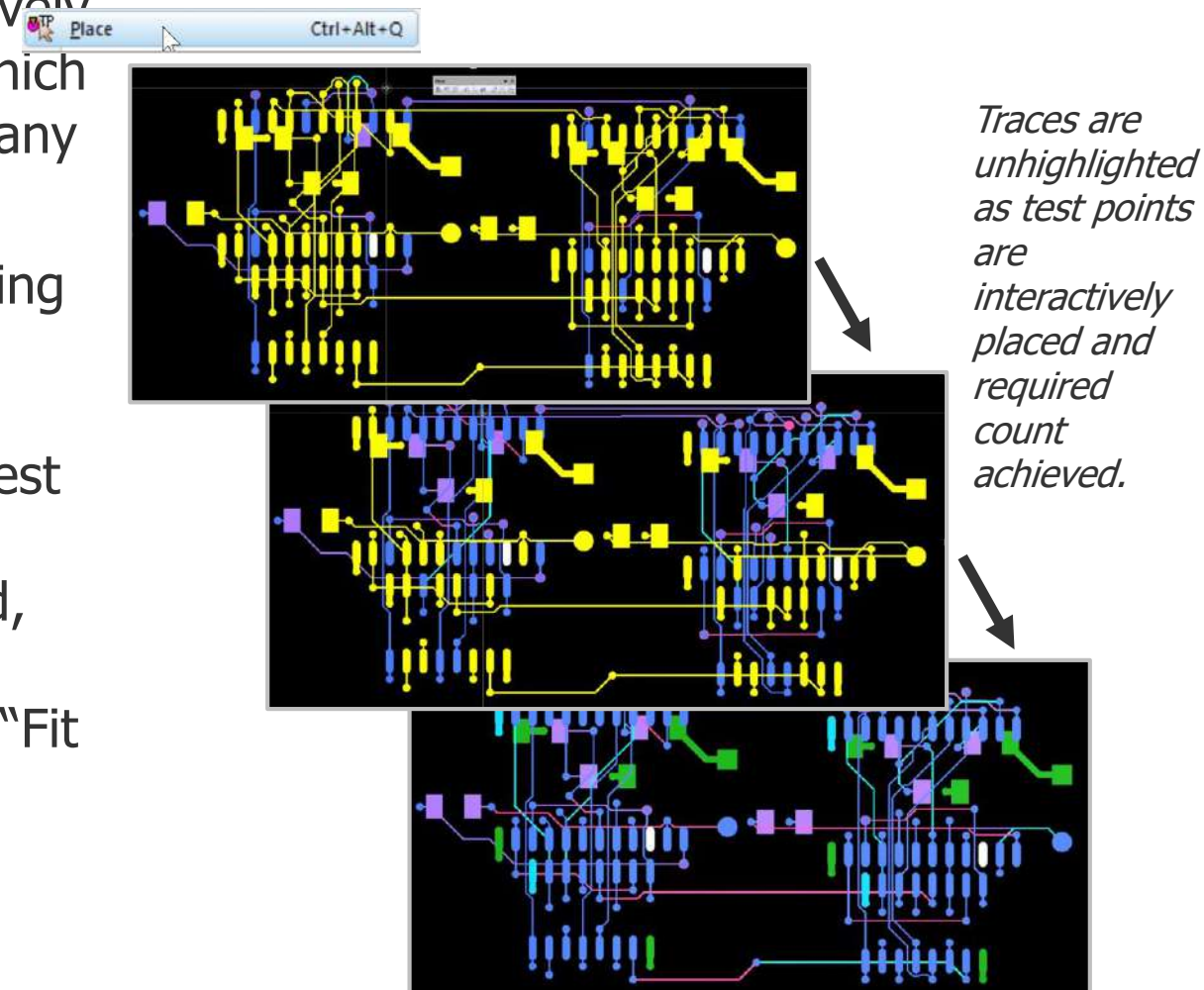
# Place Multiple Parts

- We have improved the user experience when placing a group of selected components, especially by schematic. Group selection of components in Component Explorer can be attached to the mouse cursor as if they were arranged by Planning Group.
  - This feature reduces the number of user steps required today (Select->Group->Place Group->Auto Arrange)



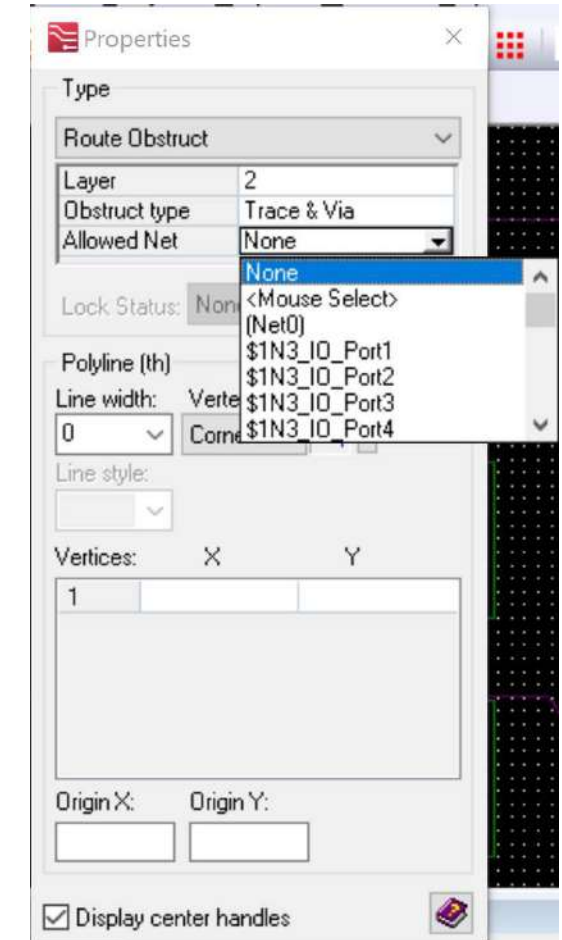
# Place Test Point

- We have added a new methodology to interactively place test points. It will now be easy to see which nets need test points and place a test point on any of these nets.
- The new functionality is action object, highlighting the nets that do not have enough test points. Sequential placement of test points on the highlighted nets will graphically indicate if the test point requirement is satisfied. At that point the previously highlighted net will be un-highlighted, indicating test point placement on that net is complete. The user can enable the RMB option "Fit Highlighted" to fit view to highlighted nets.
- In the status bar the user can view the placed/required test point count and net info.



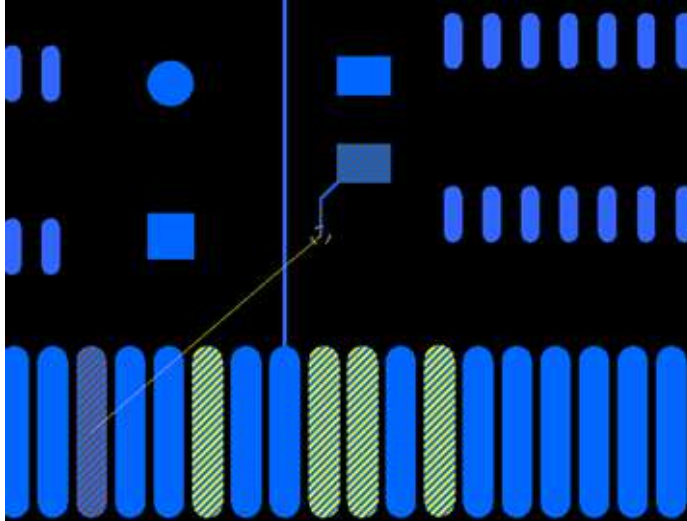
# Route Obstructs (Allow One Net)

- Sometimes there is a need to protect an area of the design but allow a single net to exist within an obstruct. We have added a new option to Route obstructs, which allows a specified net to cross within. For example, the user would obstruct all nets but allow net "GND" within the obstruct area.
  - Similar behavior to how plane shapes are handled.
  - Within the Cell Editor, selection of a pin within the component for which the net will be assigned (Similar to Metallization Area).
- Online and Batch DRC will respect the new option and allow objects of the given net to cross within the Route Obstruct.

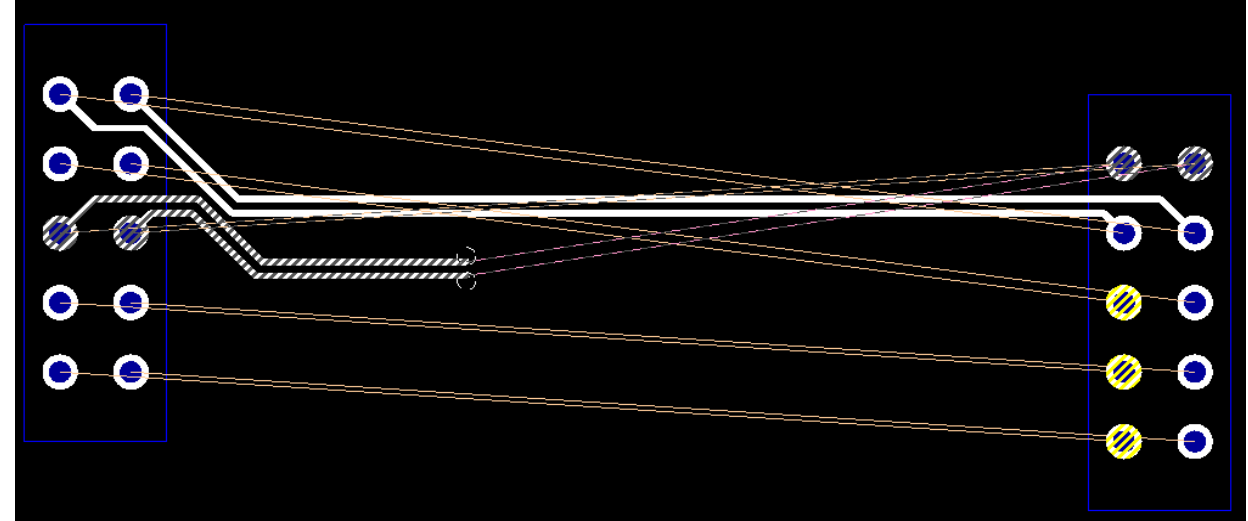


# Pin Swapping During Plow

- The interactive routing experience has been improved by enabling pin swapping during the routing process.
  - New RMB option “Allow Pin Swap” enables this functionality.
  - When enabled, swappable pins will be highlighted, and when pin is selected, the current routing target will switch to the highlighted pin(s).



Example: Single Plow



Example: Diff Pair Plow

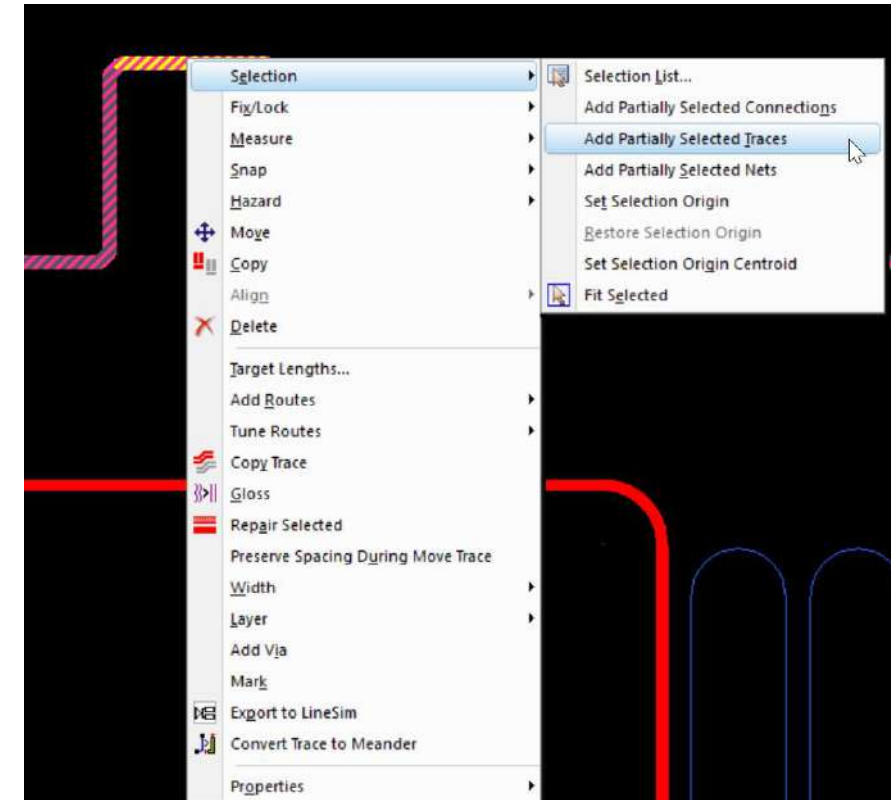


# Diff Pair Routing

- In VX.2.6, we made major improvements to our Diff Pair Routing technology focused on improving the overall quality of the Diff Pair Routing topologies. For VX.2.7 we continue to improve the Diff Pair routing and manipulation functionality:
  - Improved the quality of routes during push/shove of Diff Pairs reducing chance for splitting of Diff Pair nets.
  - Limited the unnecessary removal of Diff Pair Tuning when moving Diff Pair vias near the tuning geometries.
  - Improved the quality of routes when routing Diff Pair from existing Diff Pair hanger traces.
  - Improved the quality of Diff Pair manipulation specific to Pad Entries, and reduce unnecessary Diff Pair splitting around Rule Areas.

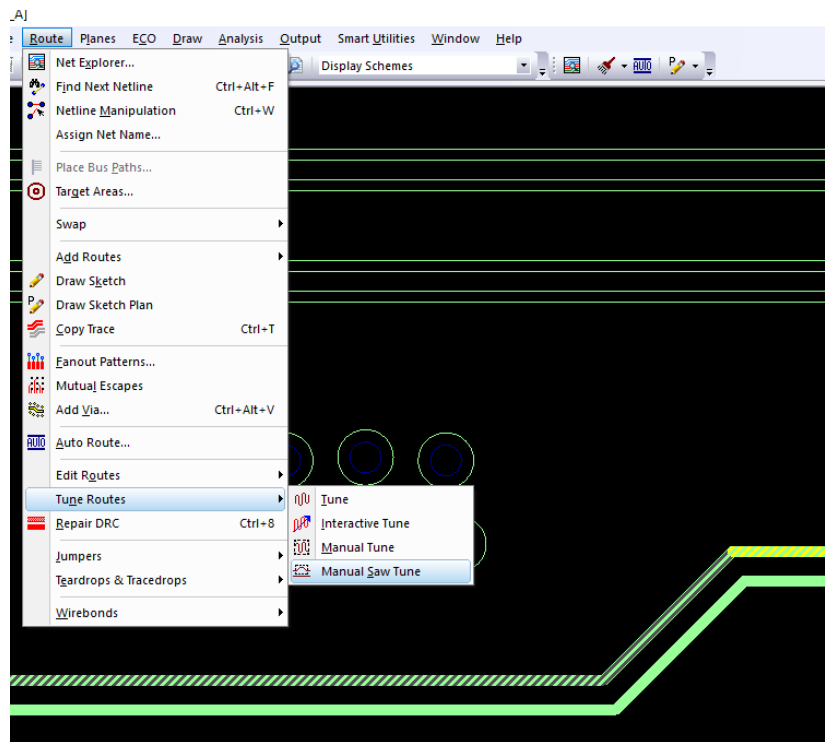
# Add Partially Selected Traces

- Enabled the efficient selection of routed nets and the ability to reroute the nets quickly with Sketch Router. The Add Partially Selected Traces command allows the selection of traces without selecting the fanout.
- This new feature works similar to Add Partially Selected Connections. A user can select a set of trace segments, then add the connections while excluding the fanouts, so the fanouts can be reused when the user needs to reroute.

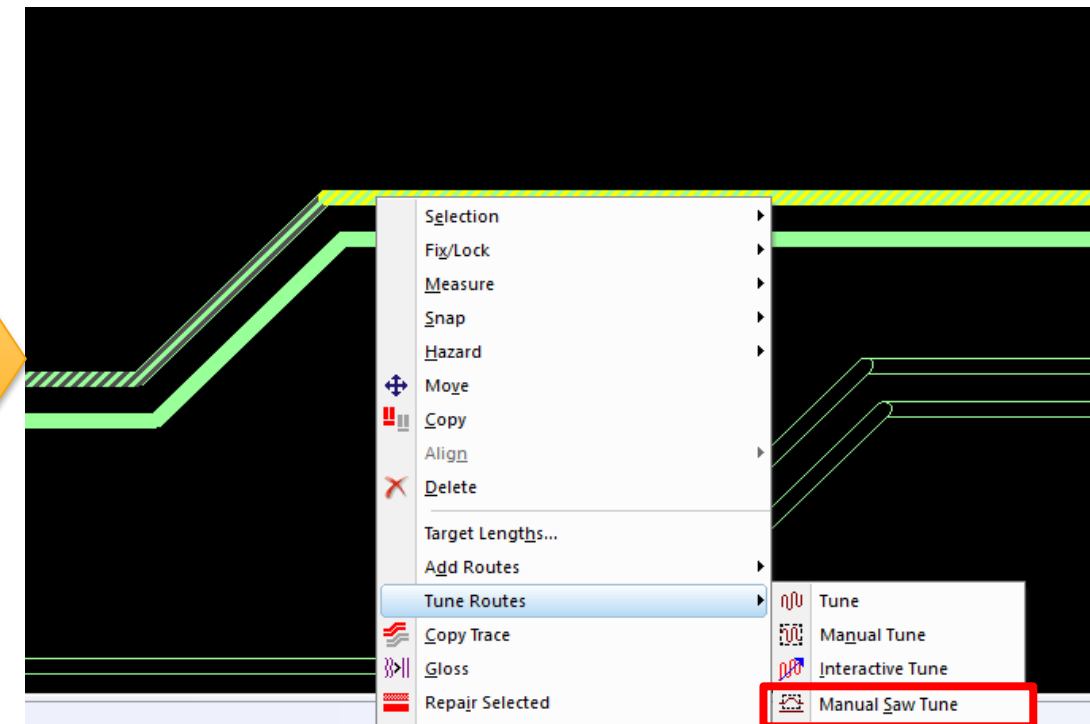


# Manual Saw Tune

- We have added the Manual Saw Tune command to the context sensitive RMB command menu.



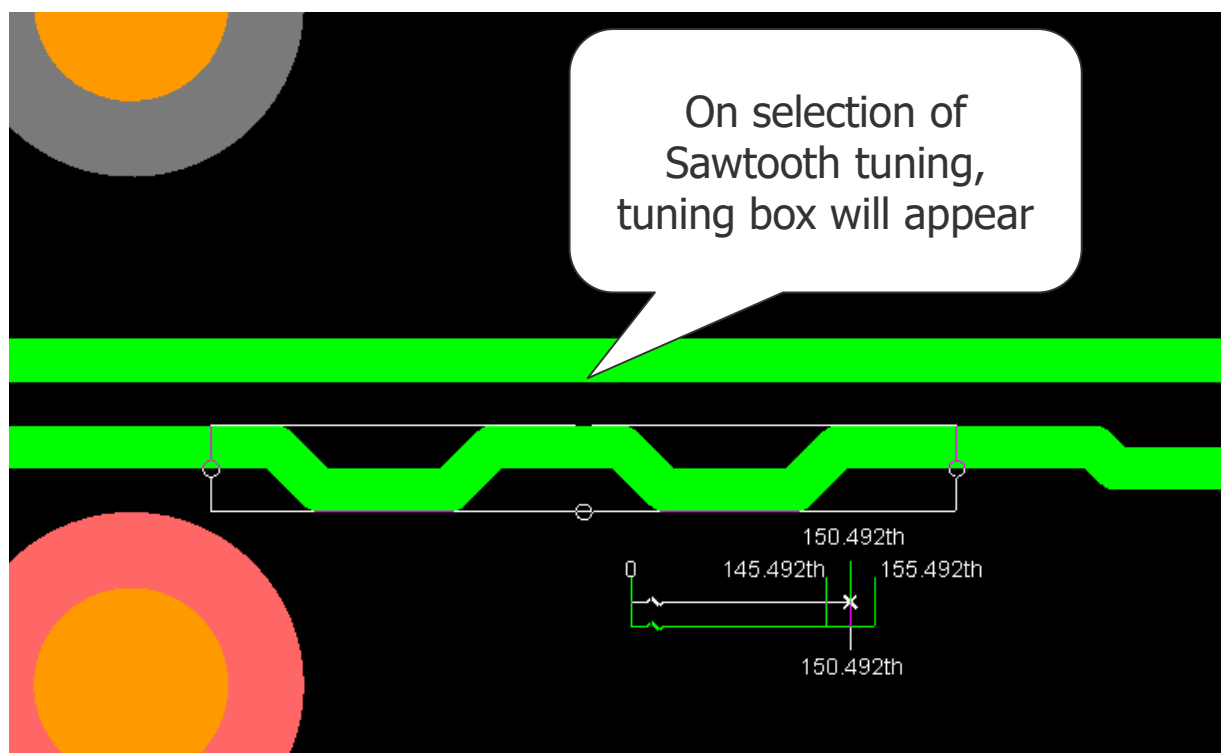
Pull Down Menu



RMB Menu

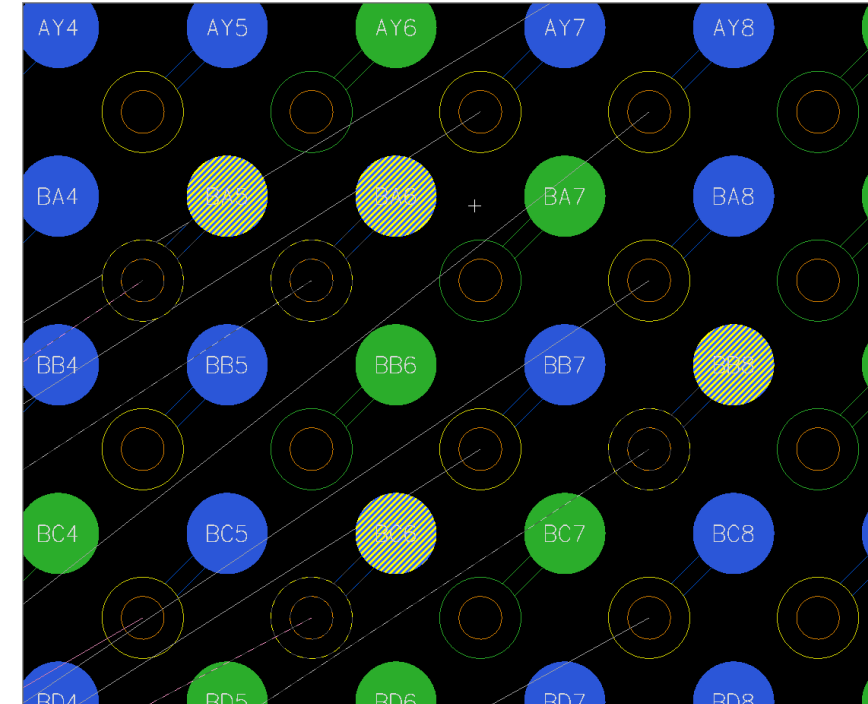
# Sawtooth Tune Box on Selection

- Sawtooth tuning has been improved by creating a Tuning Box so the user can more easily edit these patterns. Similar functionality is already available for other tuning patterns.



# Sketch Routing: Add Netlines to Sketch Plan based on Pin selection

- Netlines can sometimes be difficult to select in very dense designs. We have improved the user experience by allowing selection of connections for assignment to a Sketch Plan based on pins.

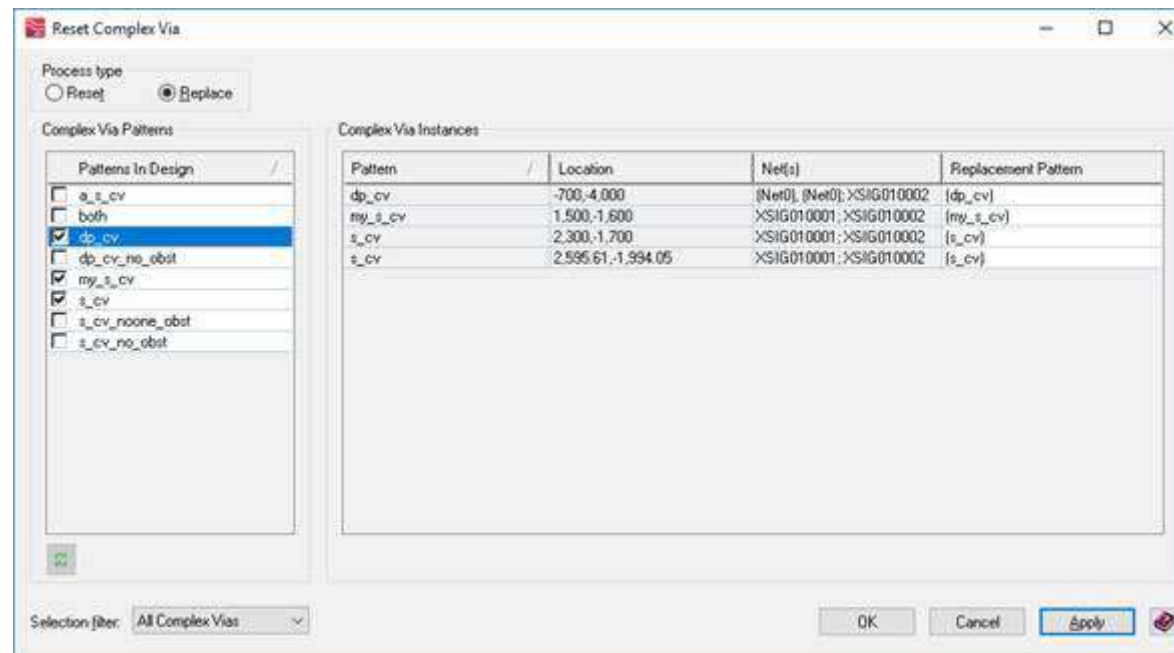


# Incremental Sketch Routing Improvements

- Based on user feedback, we have made incremental improvements to the current Sketch Routing functionality.
  - Sketch Via Pattern symbol can be too large for some very dense designs
  - Sketch Path / Sketch Plan width is too large on micro-package designs
  - Sketch Path / Sketch Plan has issues with color display

# Complex Via: Management

- As a design progresses, there may be a situation where a Complex Via used in a design needs to be changed to a different Complex Via configuration. For this case, we have added the capability to replace existing Complex Vias with different Complex Vias by name.



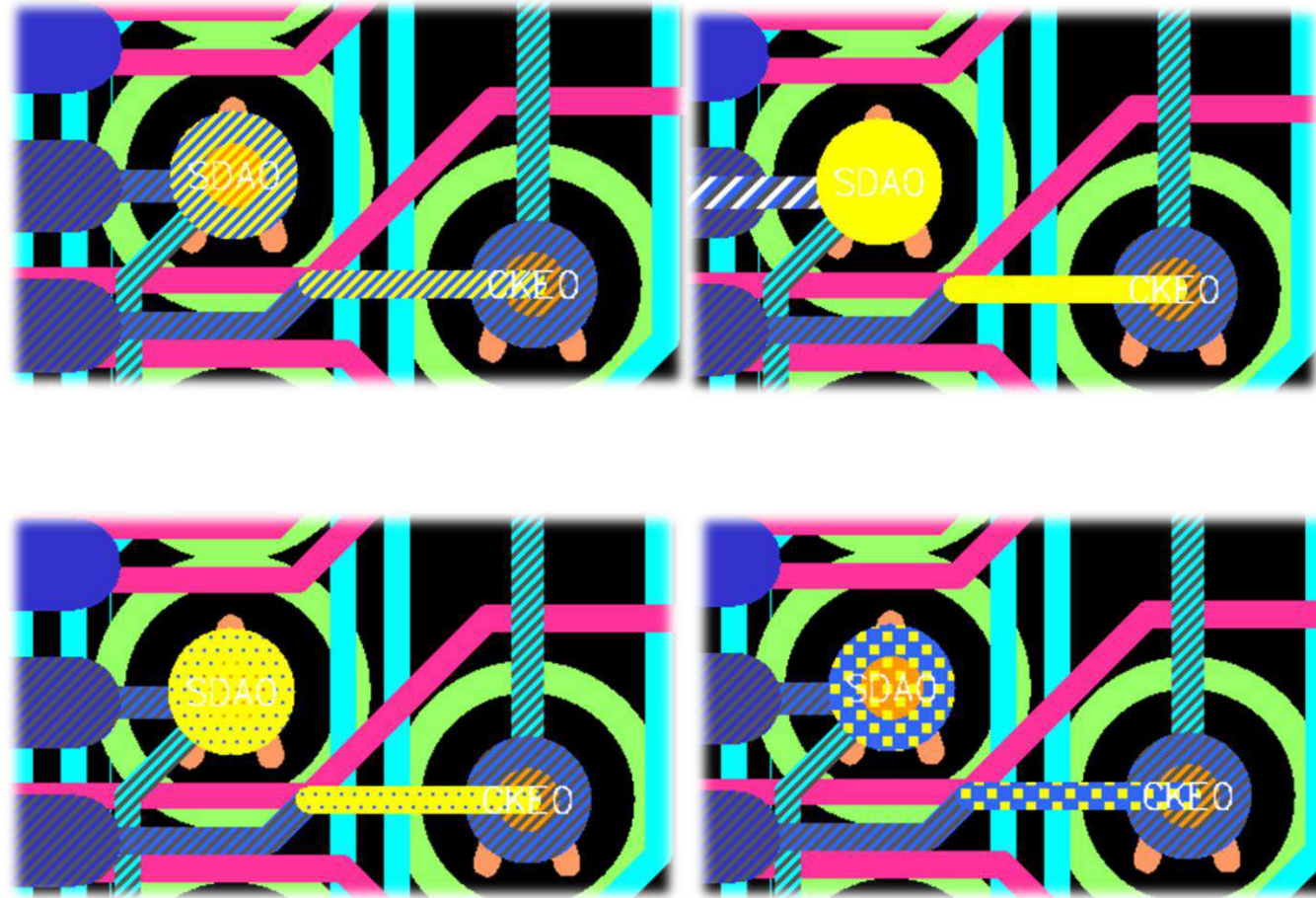
# Constraints - Automation of Custom Topologies with VPs

- Currently, we do not allow custom topologies with virtual pins to be defined in Constraint Manager. This makes translations or automation of these topologies a difficult process.
  - Today you must first define the netline order and virtual pin placement in the layout using Netline Manipulation before you can add constraints.
- In VX.2.7 we have enabled an automation interface within Xpedition Layout that will allow you to define a Custom Topology. The topology can include any number of virtual pins and can define the netline order as well as length restrictions between virtual pins and other pins.
  - This interface allows users to automate the process of creating complex Custom Topologies.



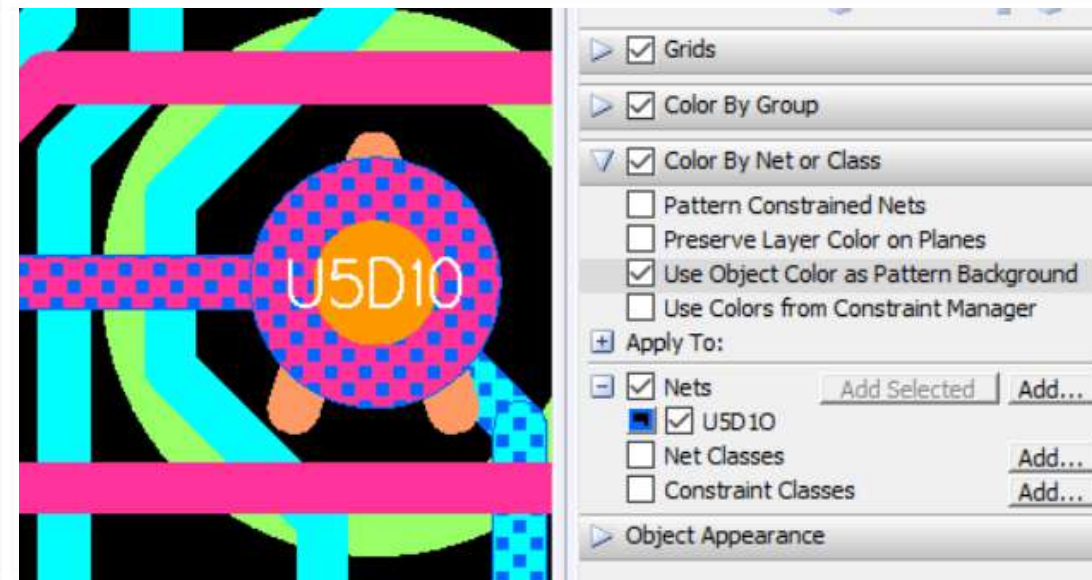
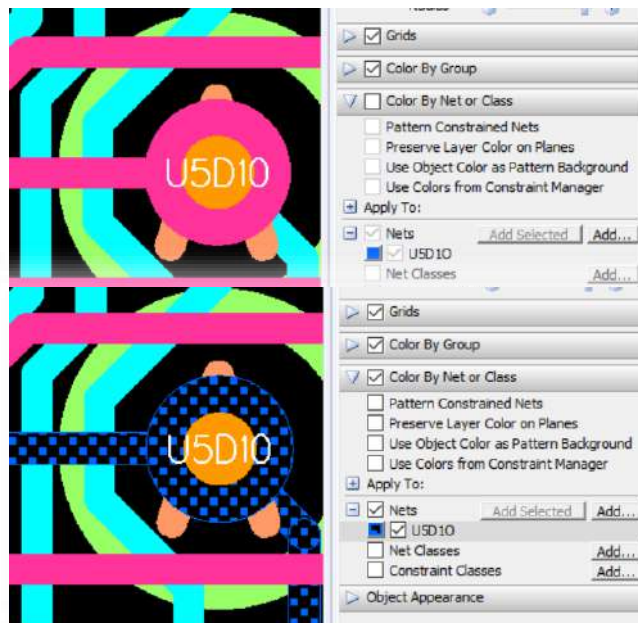
# Visualization: Improved Selection and Highlight

- Previously, when objects were selected or highlighted and you had solid selection enabled in Display Control you lost the ability to determine the layers on which the objects were placed. Even the default transparent selection/highlight pattern was so dense that it was difficult to determine the object layer.
- The user experience has been improved by allowing transparent patterns to be selected when choosing the Selection and Highlight colors. These patterns allow full control and customization of the ratio between the selection/highlight and object colors so users can choose what works best for their environment/display density, etc.



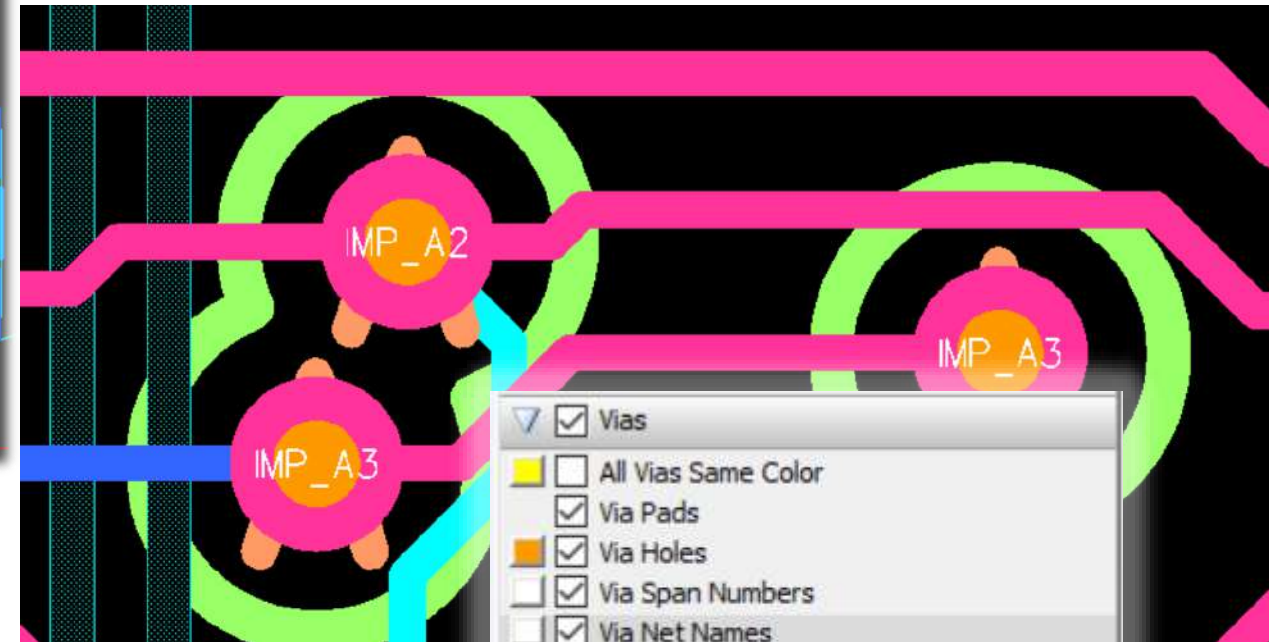
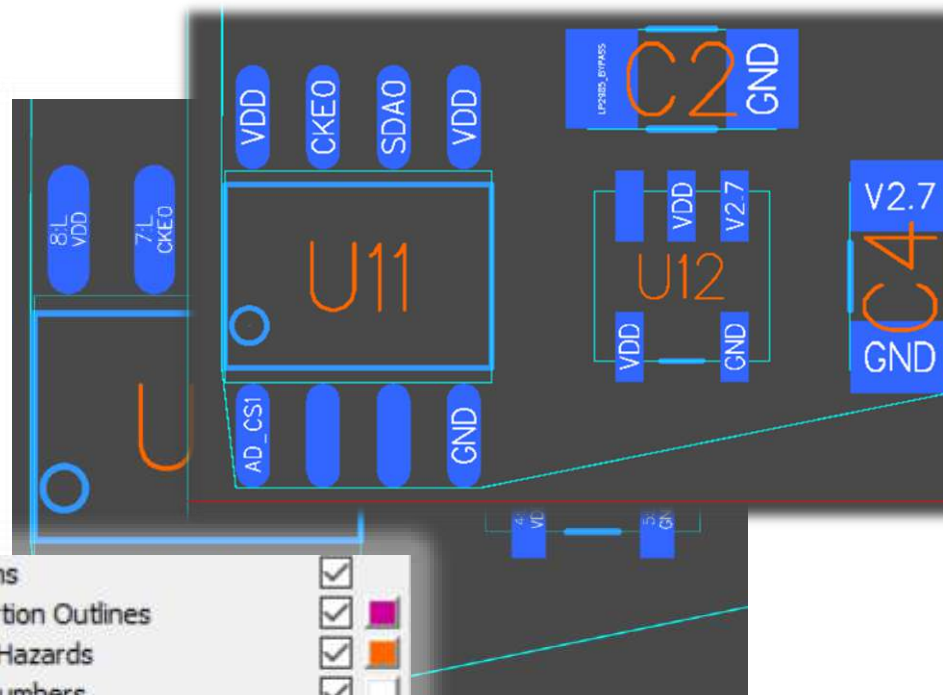
# Visualization: Improved Color by Net or Class

- When objects are colored with Color by Net or Class the user loses the ability to determine the layers on which those objects are placed.
  - The user experience has been improved by introducing the Use Object Color as Pattern Background option within the Color by Net or Class section of Display Control. This option allows the color of the object to be used as the pattern background when applying the override look to the objects.



# Visualization - Net Name Display on Pin & Via Pad Graphics

- Net Name Display on Pin & Via Pad Graphics
  - We have enhanced our display of net names within graphics to support zoom dependent net name display on Pin Pads and Vias.



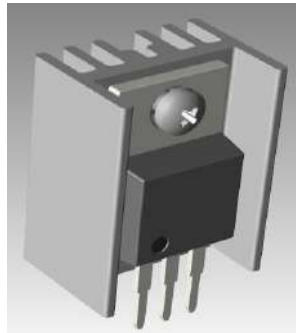


# 3D Technology - Added JT 3D Model Format Support

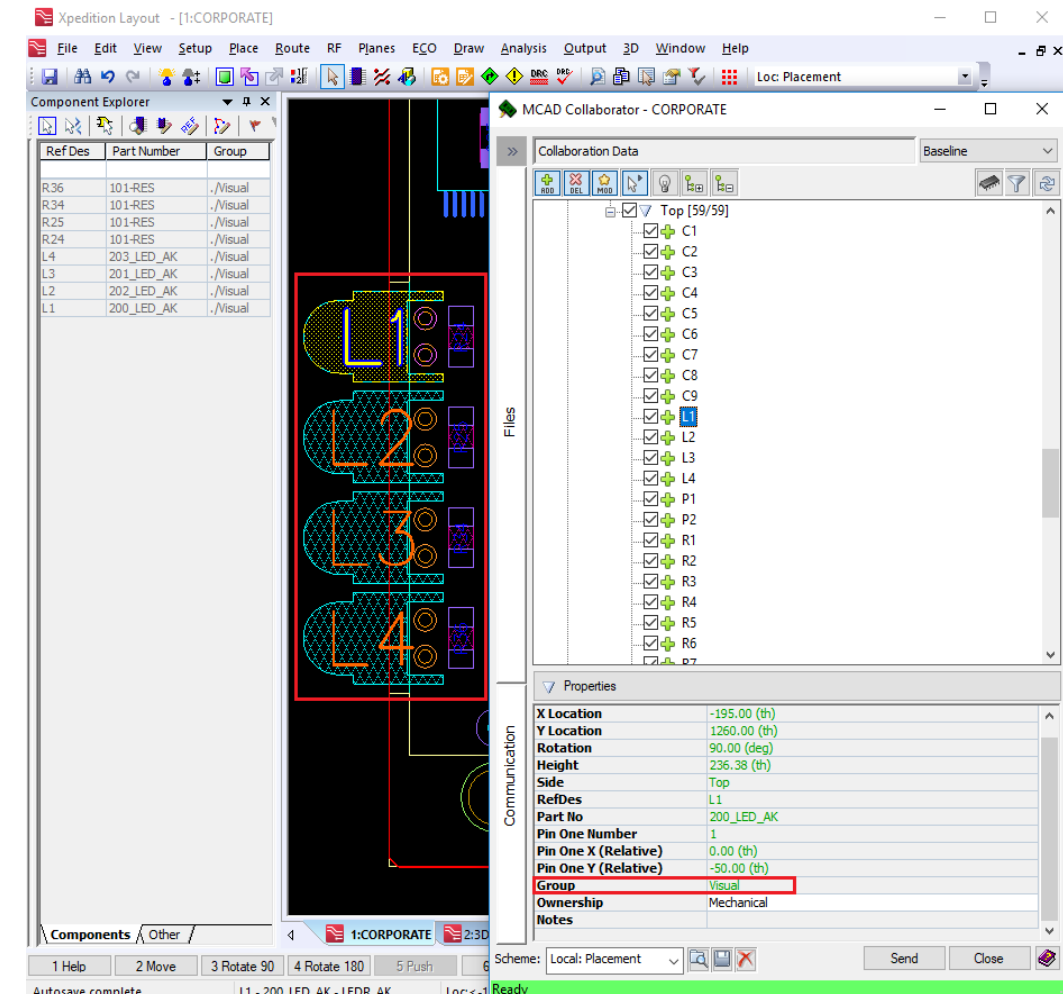
- Added support for the JT 3D model format. The format was designed as an open, high-performance, compact, persistent storage format for product data enabling Siemens visualization and collaboration technology. JT can also be used as an option to send a 3D PCB product model to MCAD systems.
  - JT is becoming an engineering / manufacturing format, not just a visualization format.
  - The IT landscape is changing, so JT enables mobile devices, cloud, WebGL, AR/VR, etc.

# MCAD Collaboration: IDX / IDX Plus

- Continued investment in the IDX exchange, with Plus extensions in areas that provide better integration.
  - Component groups (IDX Plus)
    - NX recognizes frozen group constraints
  - Nested cells (IDX Plus)\*
    - NX recognizes mechanical cells nested into component cells

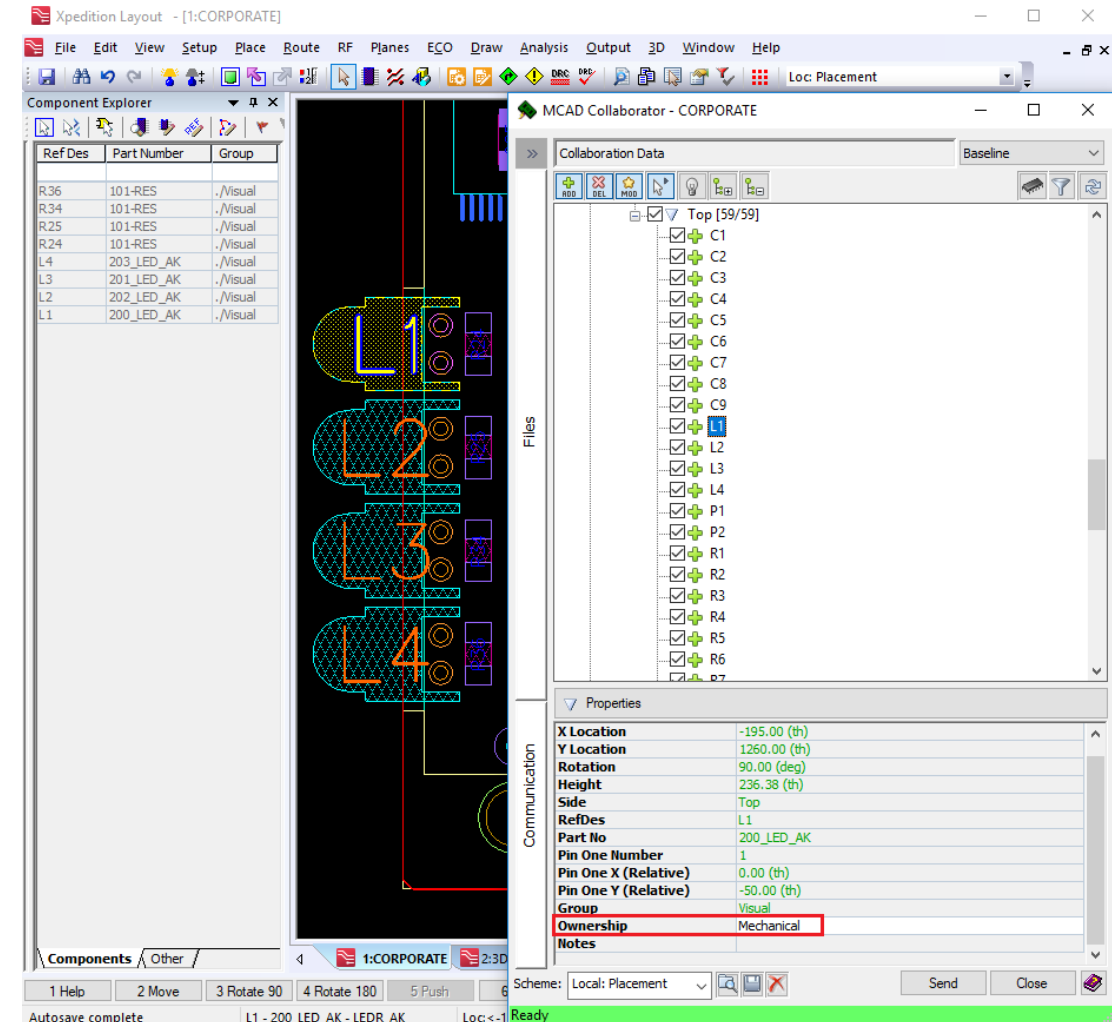
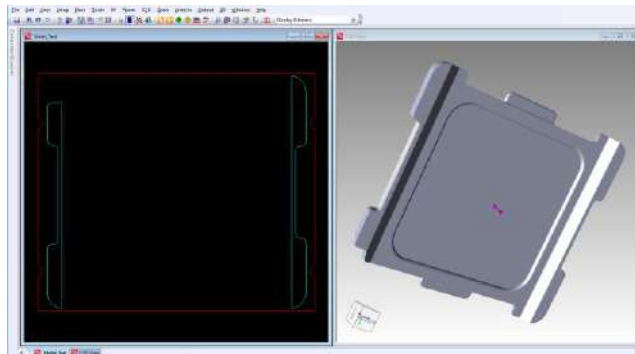
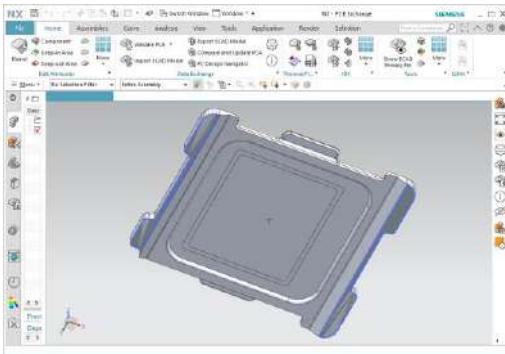


\* At the time this slide was created, there are pending NX changes to resolve issues with nested cells. These changes are anticipated in a monthly release of NX, prior to Xpedition VX.2.7 release.



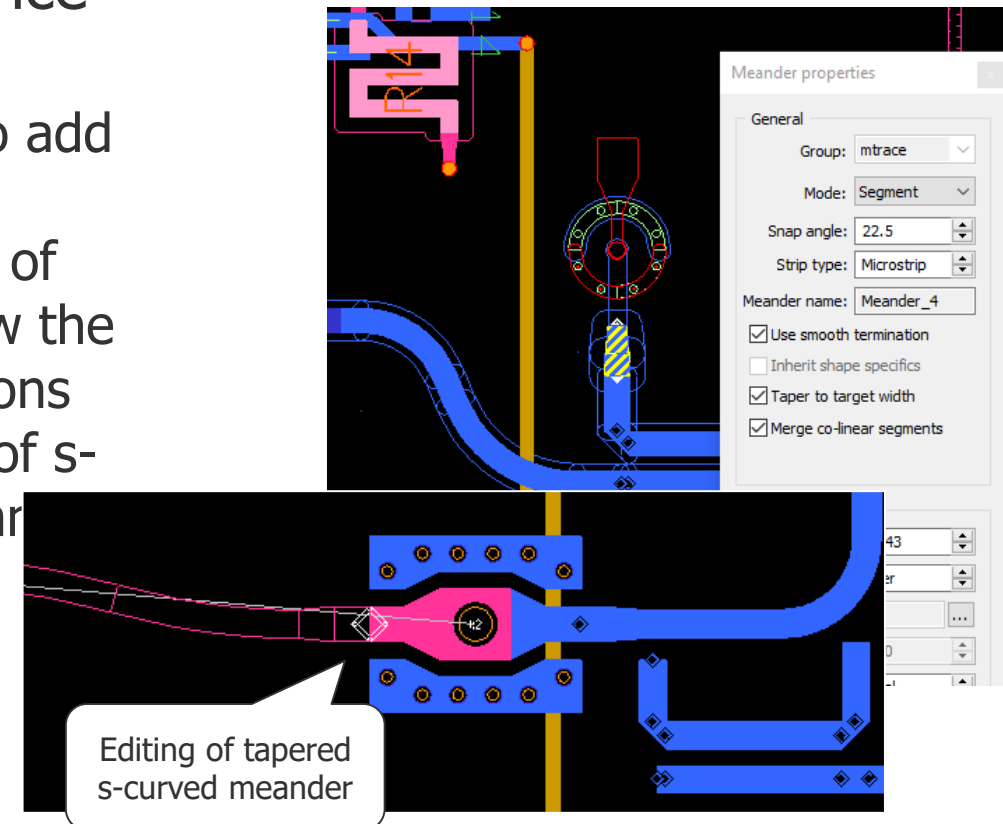
# MCAD Collaboration: IDX / IDX Plus (cont'd)

- Object Ownership
  - Electrical or mechanical ownership on mounting holes and components
  - Prevents accidental modifications
  - Automatic rejection when ownership rules are broken
- Mechanical cell creation (IDX Plus)
  - Import placement outlines
  - Update cells with modifications



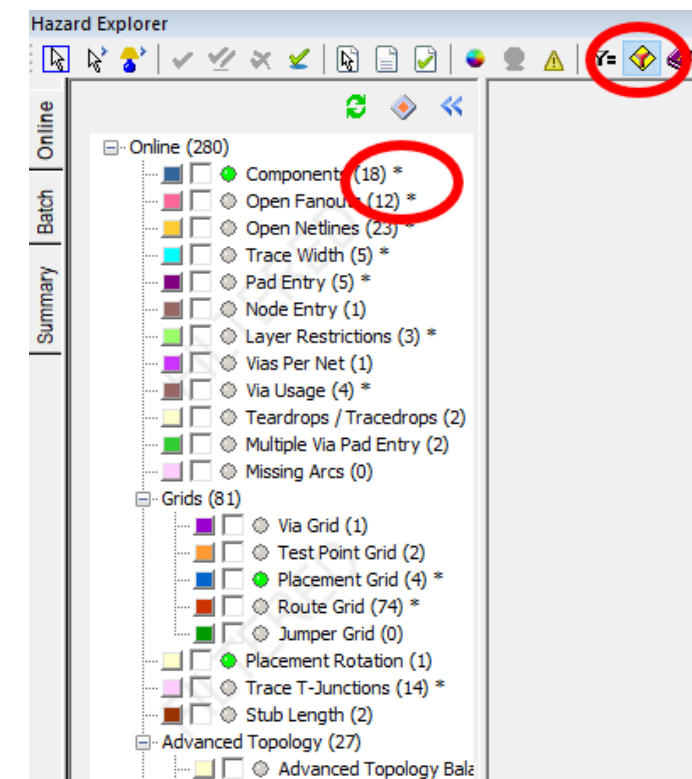
# RF Support for Complex Vias

- The Add Meander and Edit Meander commands have been refactored to support connections points in Complex Vias to get a consistent user experience when routing with meanders
  - The Add Meander command now allows the user to add complex vias during interactive meander routing
  - Edit command now understands and allows editing of meander end points with tapered segments to allow the user to reconnect the meander during ECO operations
  - Edit Meander command updated to handle editing of s-curved meanders added by the route meander command



# Hazard Explorer Dynamic Update User Control

- Hazard Explorer has been enhanced to give the user more control over dynamic hazard update.
  - New option to only update hazards for filtered nets.
  - New option to limit which Online DRC violations are updated dynamically based on the number of existing violations.
- These new options allow the user to optimize Hazard Explorer performance by controlling the dynamic update hazard process.
- Color by Hazard and Hazard Marker display within Team Design (Xtreme) is now supported since these new options allow a user to control Hazard Explorer dynamic updates due to actions from other clients.





# Snap to Boards in FabLink

- We have improved placement control for each board within a panel.
- We have enabled improved snapping to PCB objects allowing more precision in the placement and alignment of boards within the panel.
  - The RMB → Set Selection Origin command allows the Selection Origin to be set to most visible objects in the PCB.
  - Use Selection Origin with Snap and Align commands for precise placement.

# Constraint Automation

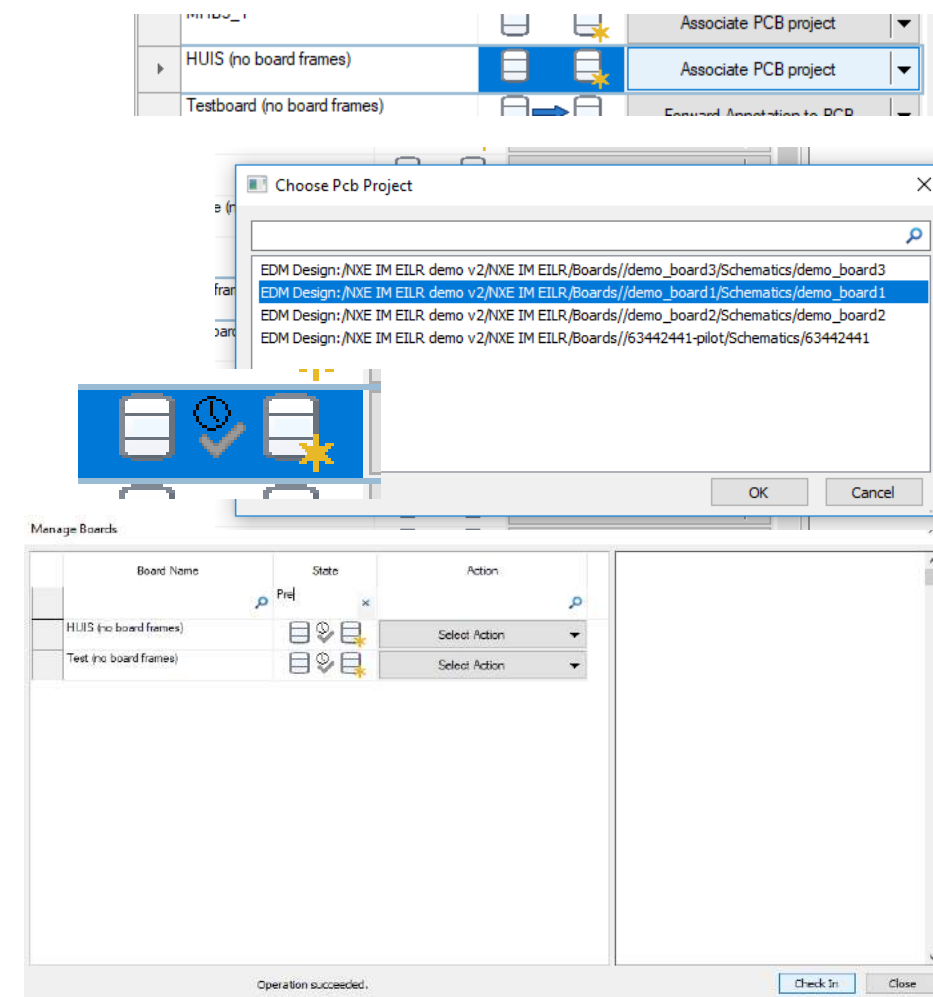
- We have continued to add functionality to the Constraint Manager API by focusing on Constraints Automation support for menu & toolbar items customization:
  - Read/Search
  - Add/Remove
  - Modify:
    - Label, Tooltip text, Description text
    - Execution and Update Method
    - Enabled/Disabled
    - Visible/Hidden
    - Checked/Unchecked

# Xpedition System Designer

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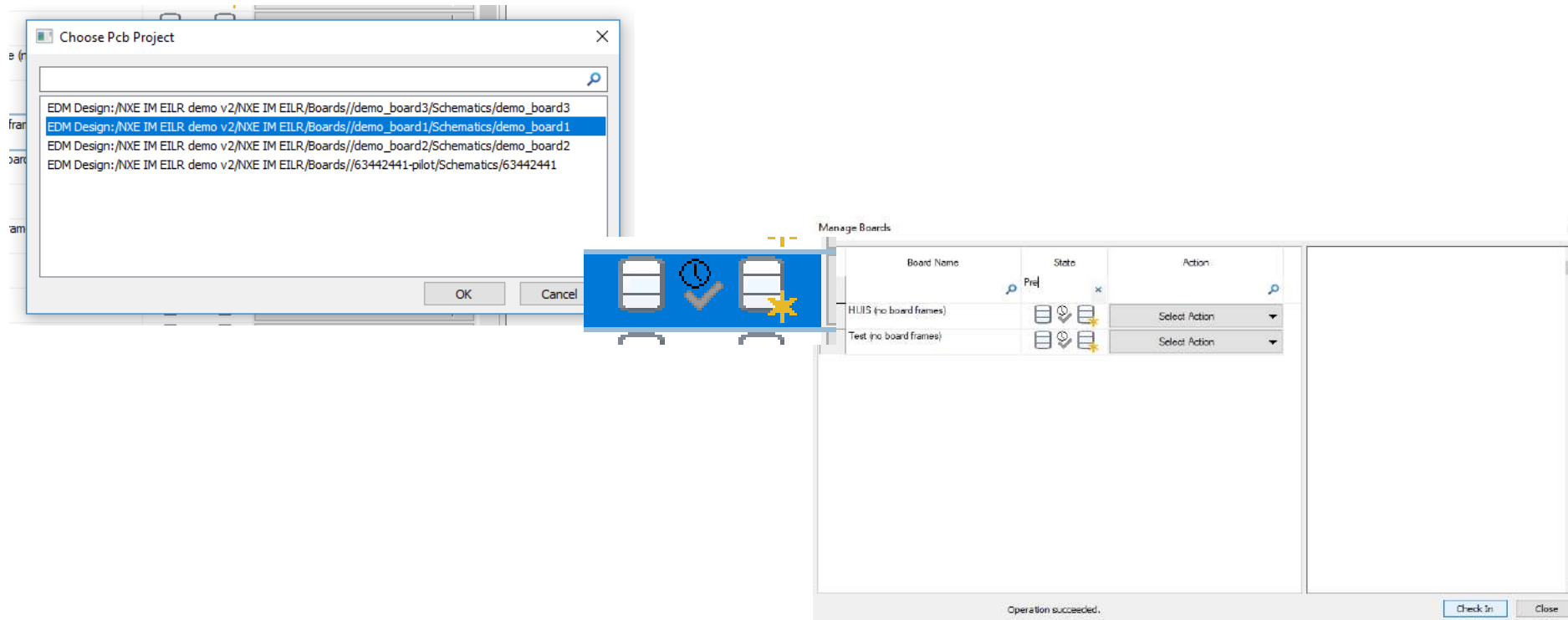
# Minimize Number of Check-ins Required for Board Association

- What: Transfers information about multiple board associations on single check-in
- Before: Each board association requires check-in
- Benefit:
  - Combination of very complex system and check-in time causes that association of all boards requires very long time
  - During check-in in process the tool stays in read-only state, therefore engineers can be more productive



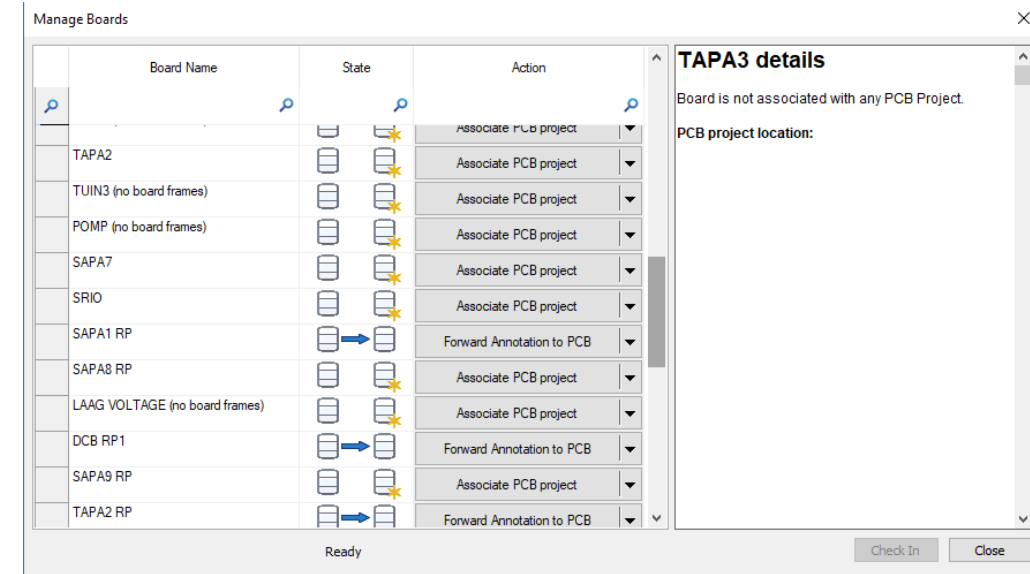
# Improved Board Association Performance

- Test results (the same design used in both tests):
  - Pre-VX.2.7: association of 45 boards 45 x 29 sec. **≈ 22 min.**
  - VX.2.7: association of 45 boards **~29 sec.**



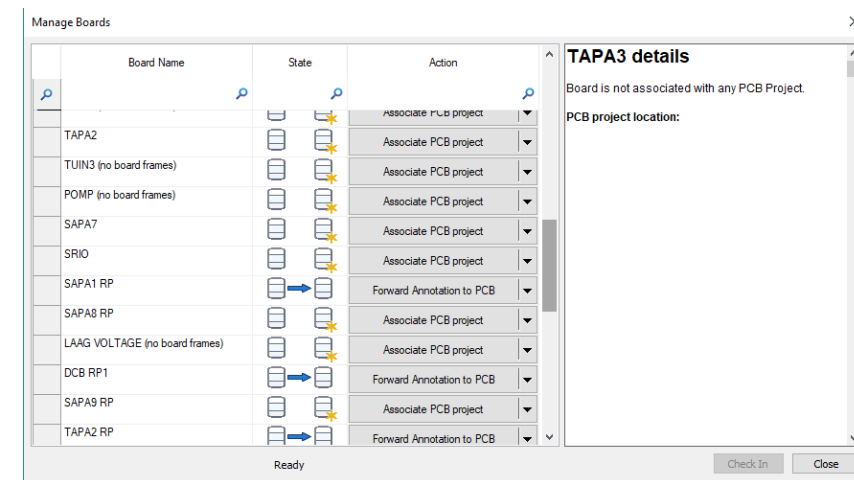
# Improved performance of calculation of Board synchronization states

- What: Shortens time required to open Manage Boards window, that synchronization cockpit therefore it is used very frequently
- Before: Very long time required to open Manage Boards window with all board and states loaded
- Benefit: Increases significantly productivity in synchronization of complex multi-board systems



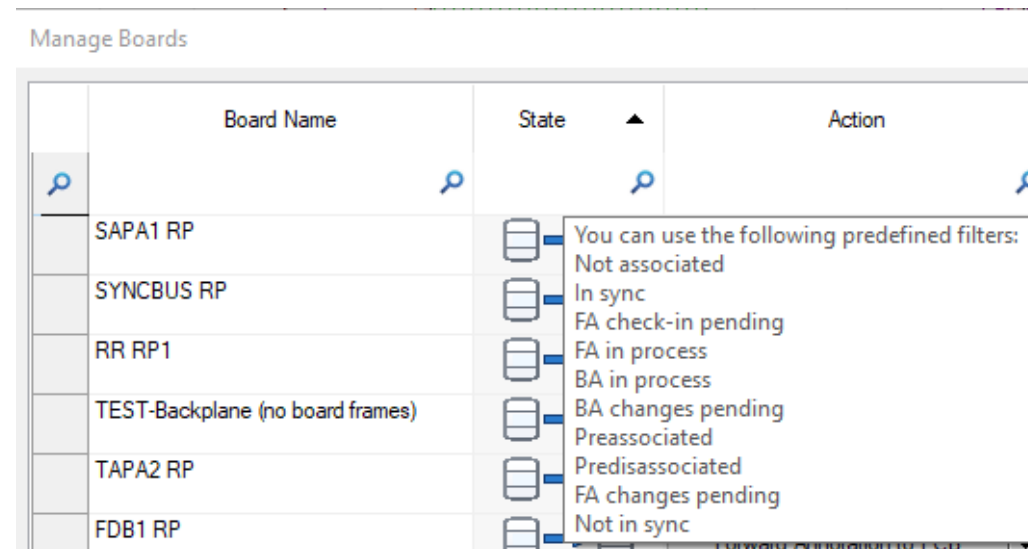
# Improved Board Synchronization State Performance

- Test results (the same design used in both tests):
  - Pre-VX.2.7: opening Managed Boards in the test system of 45 boards
    - ~4 min. (initial)
    - ~4 min. (next)
  - VX.2.7: opening Managed Boards
    - ~2 min. (initial)
    - ~33 sec. (next)
- Results/gain depends on different factors (size of system schematic, number of logical boards, number of components, communication with EDM Design)



# Improve User Interaction in Manage Boards window

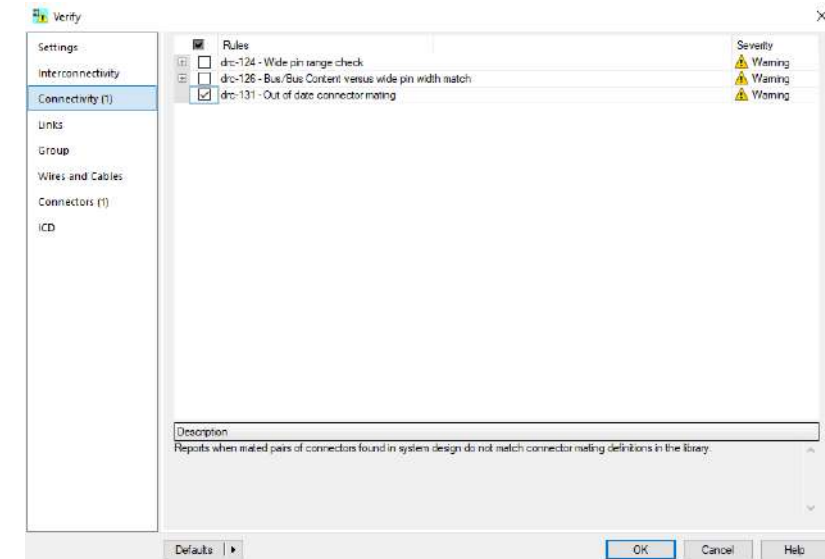
- What: Delivers a few frequently requested enhancements
- Before:
  - No searching/filtering by synchronization state/action
  - Freezes during loading/refreshing data
- Benefit:
  - Improved UX in commonly used functionality
  - Increases productivity





# Detect Out-of-date Mating

- **What:** Detects mismatches between connector matings in system design and library definitions
- **Before:** No ability to detect out of date connector mating in system design
- **Benefit:**
  - Completes correct-by-construction connector mating mechanism
  - Enables earlier detection of system interconnectivity errors, preventing incorrect physical implementation



# Enable Read-only Support for Bus Objects in COM Automation

- What: Reads bus objects and its connectivity through scripting
- Before: No scripting support for bus object
- Benefit:
  - Supports unsupported yet object
  - Ability to traverse interconnectivity that is represented by bus objects
  - Enables earlier detection of system level errors, preventing incorrect physical implementation
  - Automates checking of mating and inter-connectivity between system elements

# Part Creation

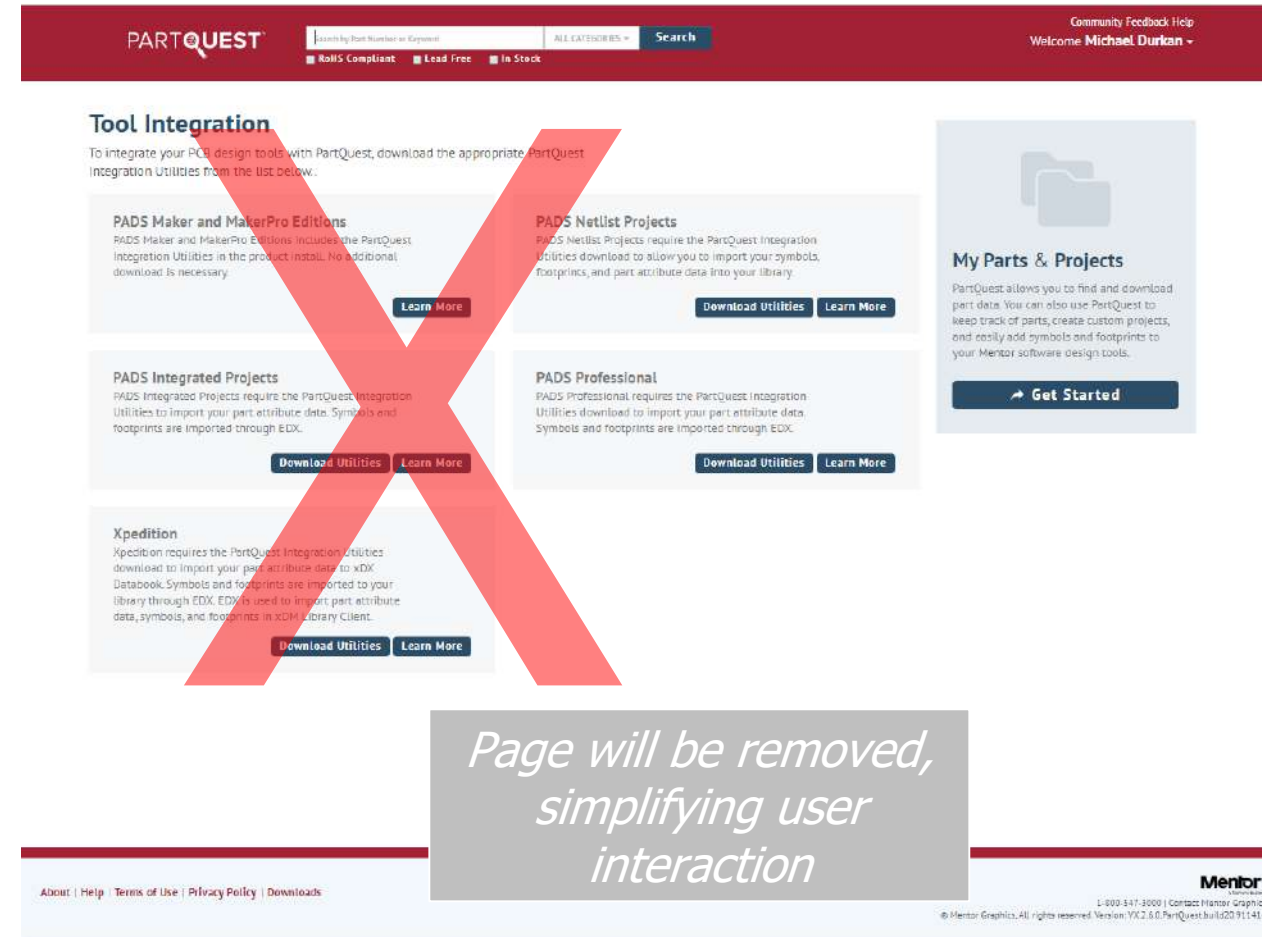
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# Part Creation Improvements

- In VX.2.7 the Part Creation processes have been enhanced across multiple product areas (Designer, Library Manager, EDM, and PartQuest)
- The following slides provide insight into the intended use and overall benefit for engineers or librarians as part of our ongoing library and part creation strategy
  - Note that PartQuest is a key element in our part creation strategy as it provides important data source, model source (symbols/cells/etc), and builder option for library parts

# Part Creation Enhancements in 2.7

- What: Simplified PartQuest part access to be flow agnostic
  - User no longer needs to set which version/flow of Mentor tools they are using
- Before:
  - Different means to download parts & part data based on flow selected
  - Had to select flow and download specific utilities
- Benefits:
  - Single data set supports PADS, PADS Pro and Xpedition libraries
  - No more pain in downloading and installing utilities for each flow



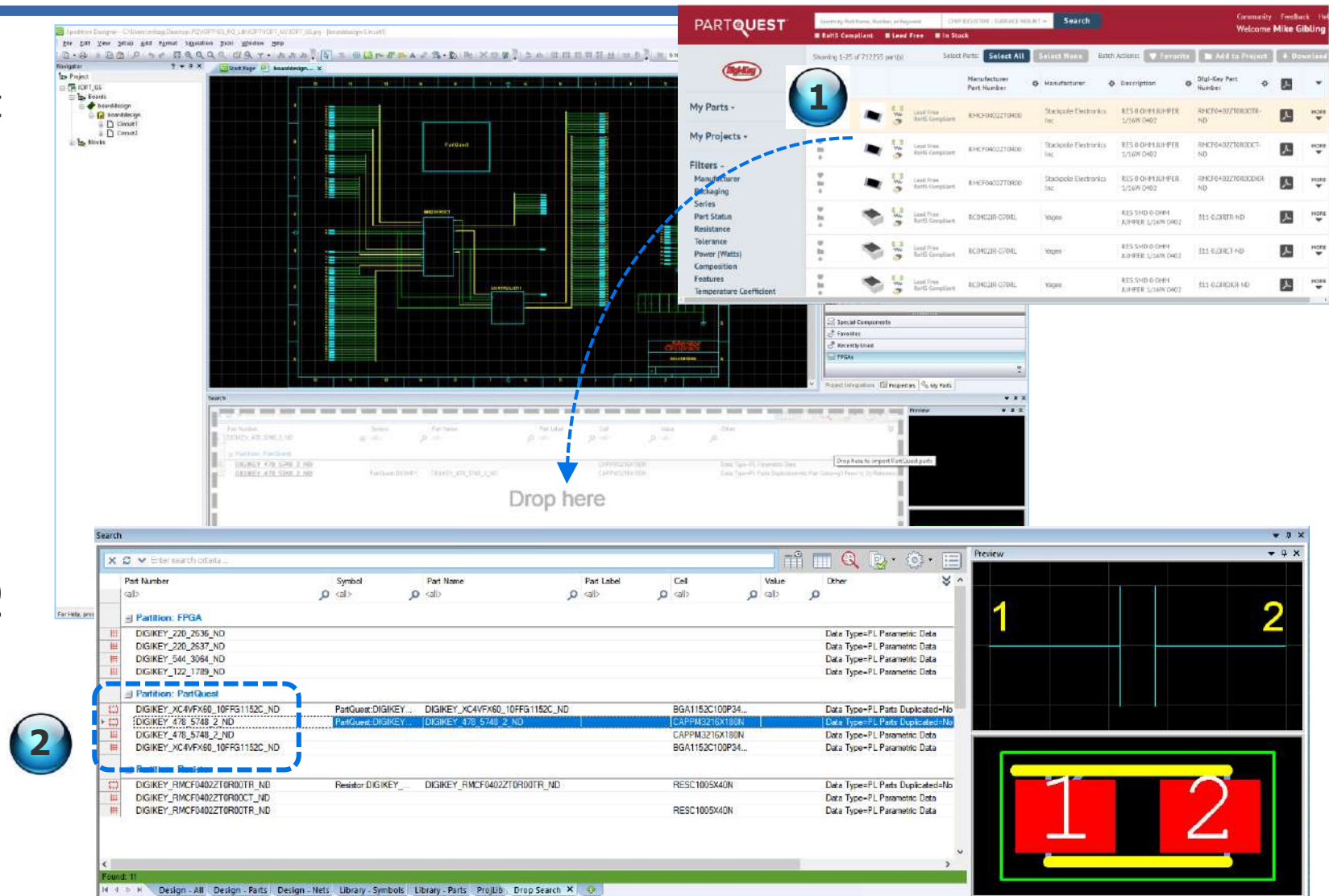
# Part Creation Enhancements for Engineers in 2.7

- What: Support for Engineer-created parts
  - Drag-and-drop PartQuest parts with existing symbols and cells to Designer Search
  - Drag-and-drop engineer-built parts from PartQuest to Designer Search
  - Parts are added to local Designer Project Library in a (read only) PartQuest partition
  - Parts are available in Search to select and place into the Designer schematic

*(Note: The above use cases are depicted on the next slide)*
- Before: The design flow did not easily support engineer-created parts to enable a faster design process. Engineers had to select or build parts in PartQuest, export them via EDX, then load them (or have a librarian load them) into the Central Library to have access to their parts; often designers were not able to write new/outside parts directly into the Central Library
- Benefit: Faster initial part access for engineers

# Drag & Drop and Search in Designer for PQ parts

- Drag-and-drop from PartQuest
  - Find part in PQ or build a part in PQ, drag and drop in Designer Search window
- Behind the scenes, this drops the complete part definition, including symbol and cell into the PQ partition of their local Project Library
- Added Search support in Designer Project Library for PQ parts





# Designer Part Lister Enhancement to Show Engineer Created Parts

- What: Designer Part Lister indicates which parts in the design originated in PQ, providing a flag for users to easily see all parts introduced/created by the engineer in a design
- Before: engineers could introduce temporary parts and forget to replace them with approved company parts or verified cells before the board is released, sometimes not realizing that an outside part had been used until downstream. Often outside parts have to be approved to be purchased or to be used by manufacturing
- Benefit: engineers can use Designer Part Lister to flag the PartQuest parts throughout the design process so that the part can be properly completed before a board is submitted to manufacturing

The screenshot displays the 'PartsLister - Parts-SymbolsByPartitionText' dialog box on the left and a table of parts on the right.

**PartsLister - Parts-SymbolsByPartitionText Dialog:**

- General tab selected.
- Output File Name: Board1.txt
- Scope: Board (selected), Project, Block.
- Options: ☐ Open the generated file.
- Open with: [empty field]
- Options: [empty field]
- Config Name: Parts-SymbolsByPartitionText (highlighted with a red box).
- Buttons: Run, Cancel, Help.

**Part Lister output for AspenIOPT:**

Generated on Thursday, May 09, 2019

#	QTY	Part Number	Description	Value	Ref Designator	Symbol	Partition
1	1					\$\$Ripper_ripper.1	
2	9	3101-0075	CAP, CERAMIC, 10uF, 10%, X5R, 25V, 1206	10uF	C1,C3,C9,C16,C18,C22,C50,C65,C81	CAP_Small.1	passive_discrete
3	6	3101-0076	CAP Ceramic 0.1UF 50V Y5V 0603	0.1uF	C2,C8,C17,C21,C290,C294	CAP_Small.1	passive_discrete
4	7	3101-0110	CAP TANT,22UF 6032 20% 25V CASE C	22uF	C4,C5,C10,C11,C12,C13,C20	polarized_cap.1	passive_discrete
5	9	3101-0107	CAP - TANTALUM, 330UF, 10%, 4V, 700MOHM ESR, 6032-28	330uF	C6,C85,C113,C127,C168,C202,C204,C268,C272	polarized_cap.1	passive_discrete
32	4	3101-0078	CAP, CERAMIC, 0.001uF, 0402, 10%, 50VDC, X7R	0.001uF	C646,C1003,C1006,C1032,C1000	CAP_Small.1	passive_discrete
33	1	DIGIKEY_PCE3878T				DIGIKEY_PCE3878TR-ND.1	PartQuest

# Part Creation Enhancements for Librarians in 2.7

- What: Librarians can bulk-load PQ parts in Library Manager
- Before: Each part file from PQ only contained one part, had to be loaded individually
- Benefit: Can quickly source a group of parts from PartQuest

The screenshot illustrates the process of bulk-loading parts from PartQuest into Xpedition. On the left, the PartQuest website shows a table of parts with columns for Manufacturer, Description, Digi-Key Part Number, Unit Price (USD), and Quantity Available. A red box highlights the 'My Projects' section on the left sidebar, and another red box highlights the 'Download' button in the top right of the table. A red arrow points from the 'Download' button to the 'Import EDI' dialog box in the center. The 'Import EDI' dialog box has 'Input File' set to 'C:\Users\jfreeb\Downloads\PQdownload\_191211\_122043381.edi' and 'Import to' set to 'C:\Users\jfreeb\Documents\Xpedition\Library Manager\Library Manager'. The 'bulk.mode' checkbox is checked. A red arrow points from the 'Import EDI' dialog box to the Xpedition Library Manager on the right. The Library Manager shows a tree view of libraries, with a red box highlighting the 'Partquest' library under the 'Central Libraries' folder.

Manufacturer	Description	Digi-Key Part Number	Unit Price (USD)	Quantity Available
Samsung Electro-Mechanics	RES SHD 10K OHM 1% 1/20W 0201	1276-3670-6-ND	0	0
Samsung Electro-Mechanics	RES SHD 10K OHM 1% 1/20W 0201	1276-3670-2-ND	0.008	5,819,990
Samsung Electro-Mechanics	RES SHD 100K OHM 5% 1/16W 0402	1276-4424-2-ND	0.005	7,020,000
Samsung Electro-Mechanics	RES SHD 100K OHM 5% 1/16W 0402	1276-4424-6-ND	0	0
Texas Instruments	IC SINGLE MONO MULTIVIBTOR USB	296-18578-2-ND	0.155	45,000
Texas Instruments	IC MULTIVIBRATOR MONOSTABLE USB	296-26594-2-ND	0.581	9,750
Linear Technology/Analog Devices	IC MONO MULTIVIBRATOR TSOT23-6	LTC6993CS6-1#TRM09FTR-ND	1.862	2,500
Analog Devices Inc.	IC CLK BUFFER 1:4 70MHZ 16LFCSP	ADCLK944BCPZ-R7CT-ND	8.020	2,689

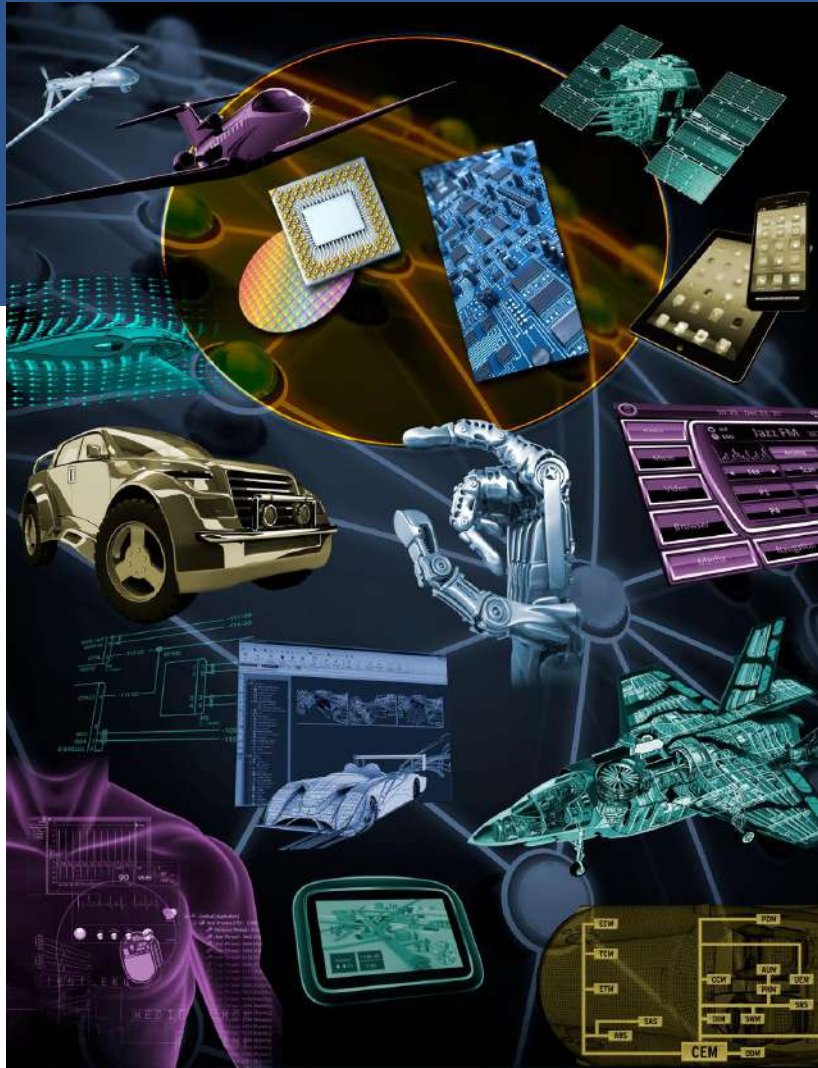
# Xpedition EDM

[↑ \(Table of Contents\)](#)

# Xpedition EDM Release Content VX.2.7

EBS

November 2019



# **PARTQUEST AS A FLOW AGNOSTIC TOOL**

# Background

---

- There has been a SIGNIFICANT amount of work on the Project “PQ as a flow agnostic tool” – would like to paint a clearer picture of all of it together and what it brings to the designers & librarians
- Librarian benefit will be more pronounced in VX.2.8 and later, but still want to call out how all these pieces fit together in VX.2.7 and lead into next steps planned in VX.2.8

# PartQuest as a Flow Agnostic Tool

## PartQuest Enhancements in VX.2.7

2.7

- Flow agnostic
  - User no longer needs to set which version/flow of Mentor tools they are using
    - Selecting default flow will be used to provide tailored messages to our user base based on Flows and based on Release Number
  - No requirement to download flow specific utilities
    - The Tool Integration page will disappear
  - Single EDX file contains all required data
    - Appropriate data extracted per flow



# PartQuest as a Flow Agnostic Tool

## Design Tools and Library tools enhancements in VX.2.7

2.7

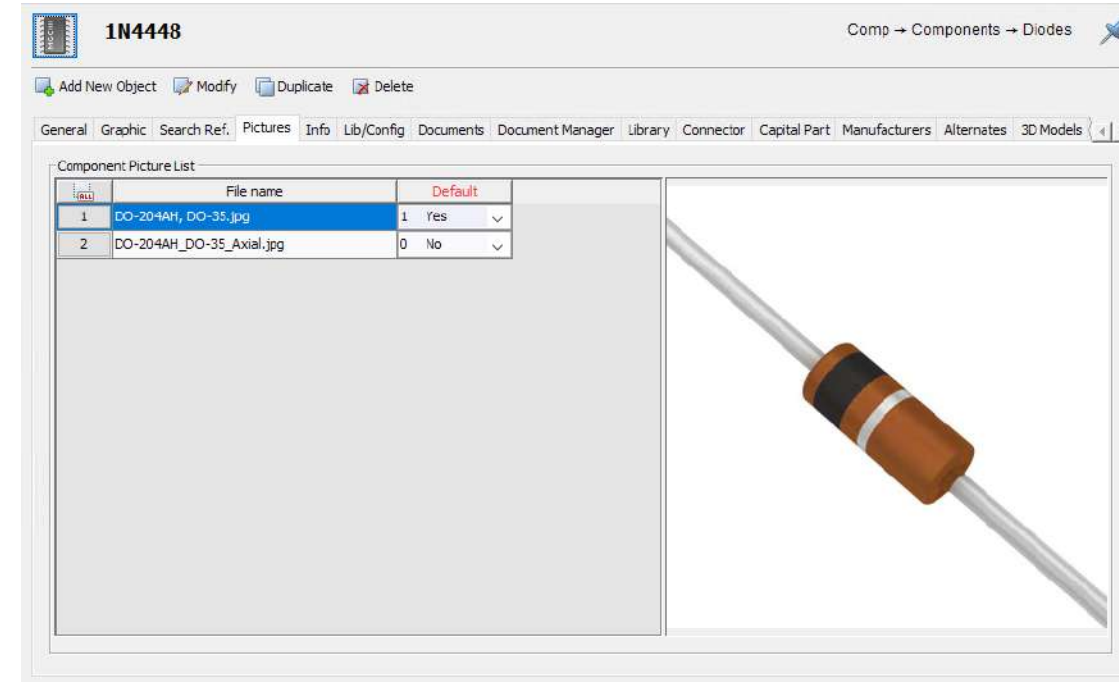
- Benefits/features for *designers* (PADS Pro, Xpedition)
  - Drag and Drop parts/symbols to Designer
  - Parts added to Project Library
  - PartQuest parts available in Search
  - Highlight parts in Parts List originating in PQ that are used in the design
  - Bulk import based on single EDX
- Benefits/features for *designers* (PADS Netlist, PADS Integrated)
  - Download parts from PQ added to library
    - Symbols/PADS Parts for netlist
    - Symbols/Parts in Central Library for integrated projects
  - Symbols or Parts available in Search/Databook for use in designs
- Benefits/features for *librarians*
  - Auto mapping
  - Easy access to 3D data

**EDM COLLABORATE**

# EDM Library + Collaborate: Support for Custom Component Images

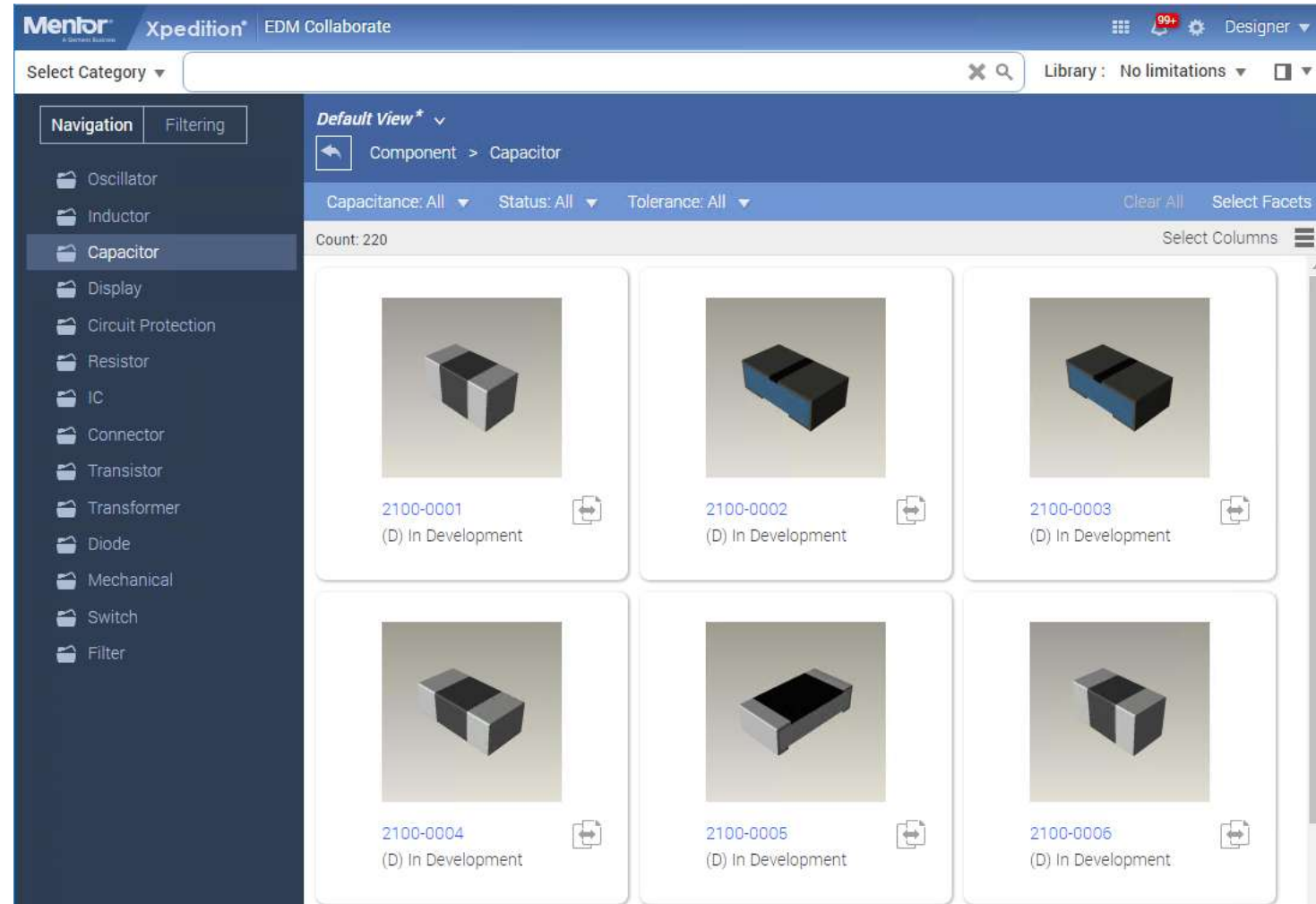
2.7

- What: Add support for custom component images
- Before: Customers could only use 3D images for components
- Component picture is a static image (e.g. JPEG, PNG, etc.) that can be associated to a component object
  - There can be multiple pictures stored for a single component
  - These pictures are stored in EDM Library data model
  - User will be able to see the list of pictures for a component in EDM Library Cockpit and define which one is default



# EDM Collaborate: Tiles View

- What: Add alternate means to view parts in library - with thumbnail images
- Before: Customers could only see images when single part selected
- Tiles View is an alternative way of displaying list of objects –
  - Uses component pictures (if available)
  - or 3D Model pictures (if available)



# EDM Collaborate Viewer: Update View Schemes to Common Scheme Management

2.7

- EDM Collaborate View schemes (PCB/schematic view schemes, data view schemes) will now use scheme management framework introduced in VX.2.6 together with Filtering Schemes
- Why: Main advantage is ability to share schemes with desired user and groups with view or edit access rights
- Before: EDM Collaborate View Schemes could be private (visible for the owner only) or shared (visible and editable for everyone)

---

Who can view:

☒ Everyone

Selected groups: [Select](#)

None

Selected users: [Select](#)

None

Who can edit:

☐ Everyone

Selected groups: [Select](#)

Design Administrators, Project Leaders

Selected users: [Select](#)

None

[Save](#) or [Cancel](#)

---

# EDM Collaborate Compare: Variant BOM Compare

2.7

- What: Ability to compare BOM data from two different variants of the same design version or different variants from different design versions
- Before: Customers could only compare the same variant from two design versions
- Why: Missing functionality



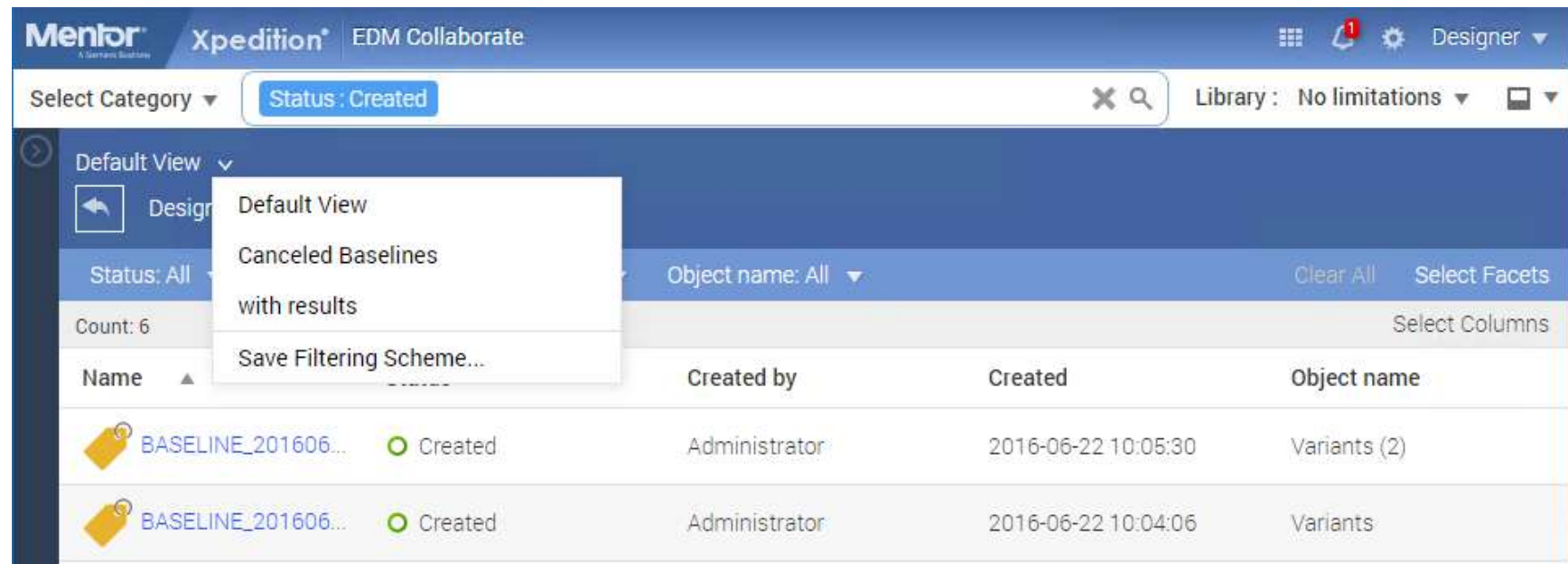
The screenshot displays the 'EDM Collaborate Compare' window in the Mentor Xpedition software. It features a search bar at the top and a 'View: Part List' dropdown. The main area shows a comparison between 'LessonFinal ver0.01 Variant1' and 'Variant2'. The table lists various components with their quantities and reference descriptions, highlighting differences between the two variants.

Excl	Part Number	Quantity	Ref Des	Quant	LessonFinal ver0.01 Variant1	vs	Variant2
	101-RES	9	...	9	101-RES		...
	102-RES	1	R12	1	102-RES		CORPORATE(Analog
	107-RES	9	...	9	107-RES		...
	113-RES	6	...	6	113-RES		CORPORATE(PCI_C...
	12303-CAP	1	C9	1	12303-CAP		CORPORATE(PCI_C...
	12308-CAP	2	...	2	<Unknown>		...
	12321-CAP	10	...	10	12321-CAP		...
	12325-CAP	2	...	2	12325-CAP		CORPORATE(micro...
	12333-CAP	15	...	15	12333-CAP		...

# EDM Collaborate: Filtering Schemes for Baselines

2.7

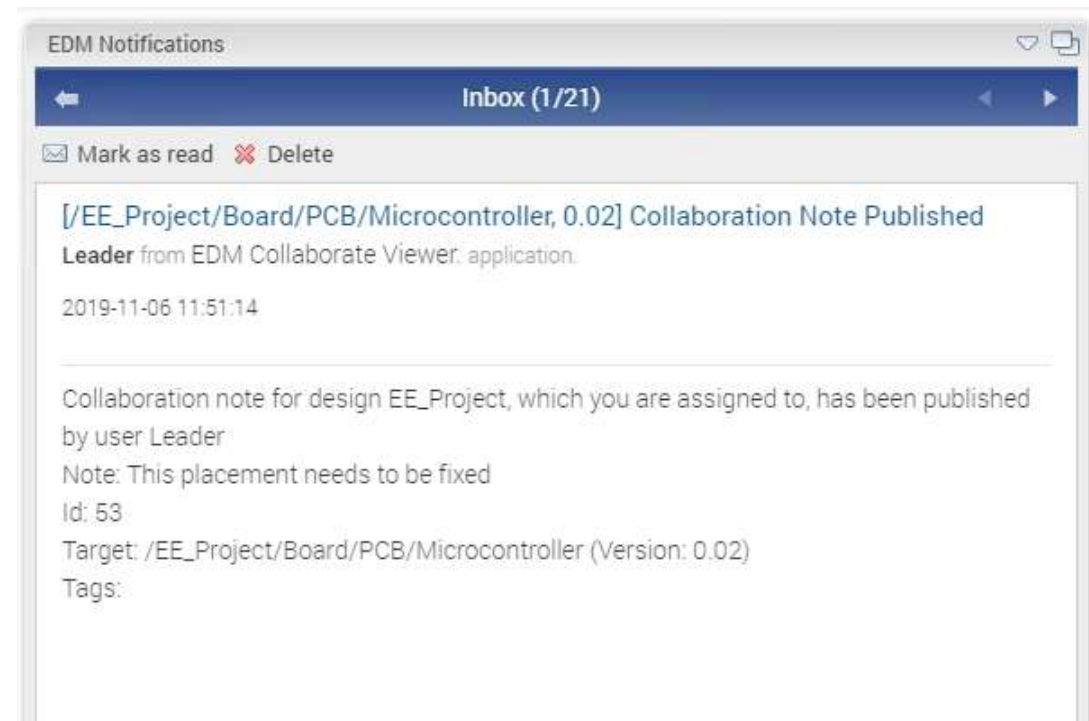
- What: Ability to save Filtering Scheme (set of columns, filters, search conditions) for list of Baselines and Released Data
- Before: Filtering Schemes were not available for Baselines, so all the changes in the view configuration were lost
- Why: Missing functionality



# EDM Collaborate: Notifications about new Collaboration Notes

2.7

- What: Notification about new published Collaboration Note is sent to all users that are assigned to this note
- Before: User was unaware that a new Collaboration Note was assigned to them
- Why: Missing functionality





# EDM Collaborate Viewer: Improve Cache Cleanup process

2.7

- Since VX.2.6 EDM Collaborate Viewer Cache Cleanup process is controlled by EDM Scheduler
- Since VX.2.7 user is able to set new options for Scheduler task to control parameters of cleanup procedure

## EDM Collaborate Viewer Cache Cleanup

Schedule Run

### Scheduled Runs

Name ▲	Created By	State	Last Run State	Actions
Default	sysadmin	Enabled	Skipped	  

### Edit Run Schedule

#### Configuration:

\* denotes required field

Design versions opened in EDM Collaborate View or Compare ⓘ

Maximum number of days in the cache ⓘ \*

28

Maximum number of versions ⓘ \*

10

Design versions never opened in EDM Collaborate ⓘ

Maximum number of days in the cache ⓘ \*

7

Maximum number of versions ⓘ \*

7

<< Back

Save

or Cancel

# EDM DESIGN

# EDM Design: Trash Bin

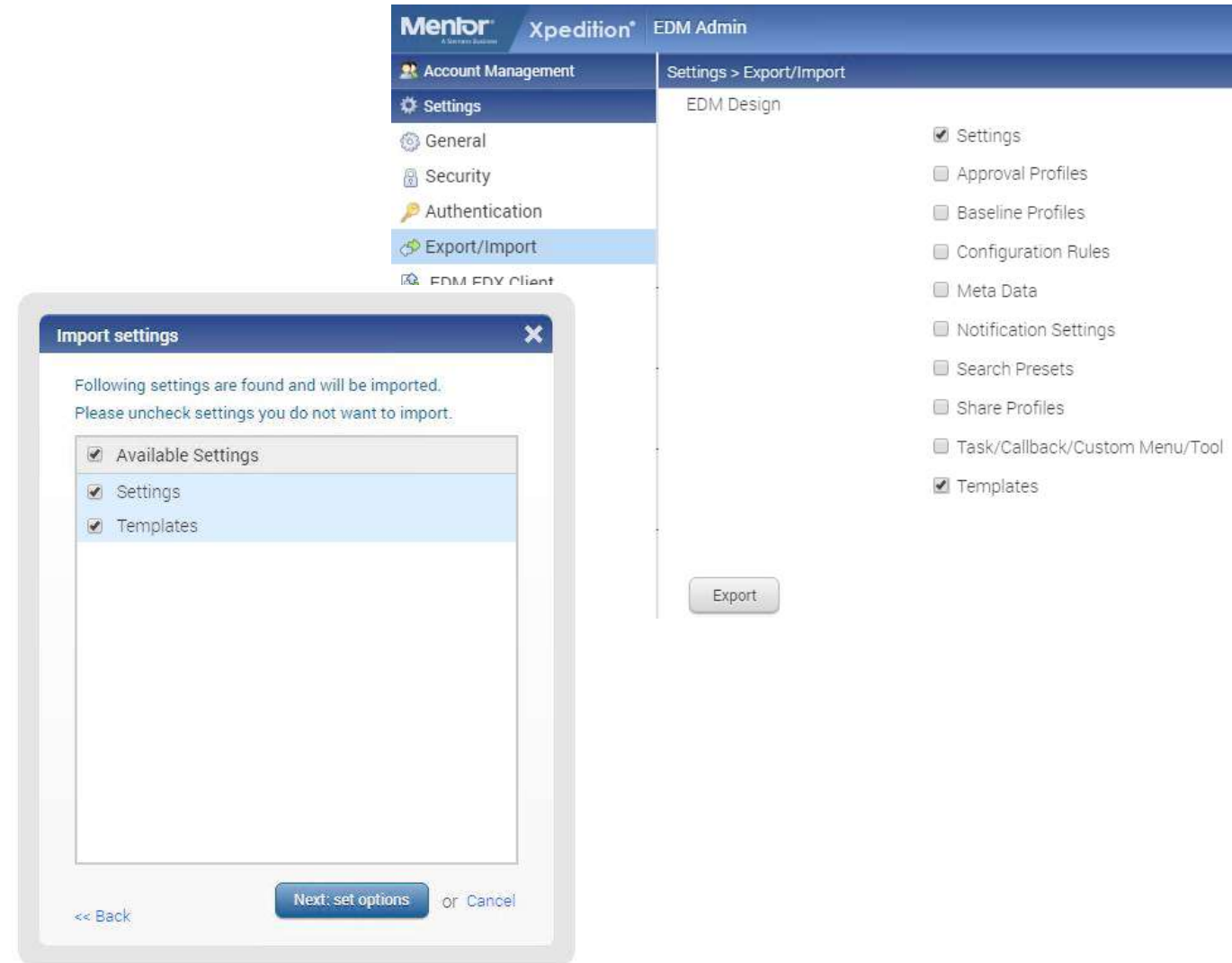
- **What:** Configure system to use Trash Bin. Administrator can restore projects/files if deleted
  - “Delete” project/container will move objects to the trash bin if system is set to use trash bin
  - Only admin can delete/restore objects from the trash bin
- **Before:** Customers could not restore data if deleted other than using full backup
- **Why:** Missing functionality

The screenshot displays the Mentor Xpedition EDM Admin interface. The left sidebar shows the navigation menu with 'EDM Design' selected. The main content area is divided into two panels. The left panel, titled 'Settings > EDM Design', shows 'Trash Bin Options' where 'Trash Bin functionality is: Active' and a 'Deactivate' button. Below this, 'Supported Release Versions for Xpedition' are listed: X-ENTP VX.2.7 (checked), X-ENTP VX.2.6, and X-ENTP VX.2.5. The right panel, titled 'Trash Bin', shows a table of deleted items with columns: Name, Path, Data type, Deleted, Deleted by, and Size. The table contains three entries: WEB-745 (Project, 641 MB), LogFiles (File, 257 B), and Board (Board Con..., 41 MB). Above the table are buttons for 'Restore' and 'Delete', and a search filter.

Name	Path	Data type	Deleted	Deleted by	Size
WEB-745	/	Project	2019-10-22 06:04:00	Administrator	641 MB
LogFiles	/WEB-877...	File	2019-10-22 06:04:00	Administrator	257 B
Board	/WEB-70...	Board Con...	2019-10-22 06:09:00	Manager	41 MB

# EDM Design: Export/Import

- What:
  - Enhance export/import for settings and templates
  - Download the log file for Import operation
- Before:
  - Customers could not move settings and templates between servers e.g. test and production
  - Accessing import details required EDM Server log access
- Why1: Missing functionality
- Why2: Usability improvement



# EDM Project tool

## Command line tool to force-delete EDM Design projects - make it as generally released

2.7

- Before: Customers could not delete a project regardless it's state
  - Customers wants an easy way to delete project regardless of its state e.g. after release
  - Customers need an easy way to remove sensitive data before sharing with Mentor or for internal purpose (e.g. trainings)
    - This is how some customer share their data with us
      - Replicate their production EDM Server
      - Remove some EDM design projects which contains sensitive data from the replica
      - Create backup data from the replica & share it with us
- Why1: Removing sensitive data using existing functionality was cumbersome/almost impossible to use
- Why2: The tool can be used by customers to customize their deployment before providing auto-pruning functionality e.g. register as a post release callback to remove the project

```
C:\mgcnoscan\MentorGraphics\EEVX.2.7\SDD_HOME\common\win64\bin>edm-project-tool.exe
Restricted Copyright Siemens 2020. All Rights Reserved.

Usage: [LOGIN] [DATABASE] [COMMAND] [OPTIONS]
LOGIN :
  -configname <configname>    login configuration name. Mutually exclusive with: -sessiontoken, -server and -port
  -port <port>                port number. Default is 31000. Mutually exclusive with: -configname
  -server <server>            server name or IP address. Default is localhost. Mutually exclusive with: -configname
  -sessiontoken <sessiontoken> login session token. Mutually exclusive with: -configname

DATABASE :
  -oracle <databaseconfig>    Please provide the value you defined in 'Database' section in EDM Server Cockpit.
                              <Oracle Database Server>/<Oracle Database Port>/<Oracle Service Name>/<Oracle Database
User Name>/<Oracle Database Password>
                              (example) localhost/1521/EDM/scott/tiger

COMMAND :
  -delete <project>           delete specified project. Mutually exclusive with: -list, -deleteall, -purgetrashbin and -listtrashbin
  -deleteall                  delete all projects. Mutually exclusive with: -list, -delete, -purgetrashbin and -listtrashbin
  -list                       listing all projects. Mutually exclusive with: -delete, -deleteall, -purgetrashbin and -listtrashbin
  -listtrashbin               listing whole trash bin content. Mutually exclusive with: -list, -delete, -deleteall and -purgetrashbin
  -purgetrashbin              use to purge trash bin content. Mutually exclusive with: -list, -delete, -deleteall and -listtrashbin

OPTIONS :
  -cleanup                    use to clean up orphaned vault blobs and XCC cache.
                              In order to use this option please set EDM_SERVER_ACTIVE_DIR environment variable,
                              which points to configured Server Active Dir in the Server Utilities, e.g. C:\MentorGraphics_S
server
  -force                      deletion works regardless of project's state
  -log <path>                 path to the log file. Default is ${home}/.EDM/EDMProjectTool.log
  -loglevel <level>           Debug/Info/Warn/Error/Fatal
  -regardtrashbin              use if trash bin configuration should be regarded
  -skip                       skipping warning message
```

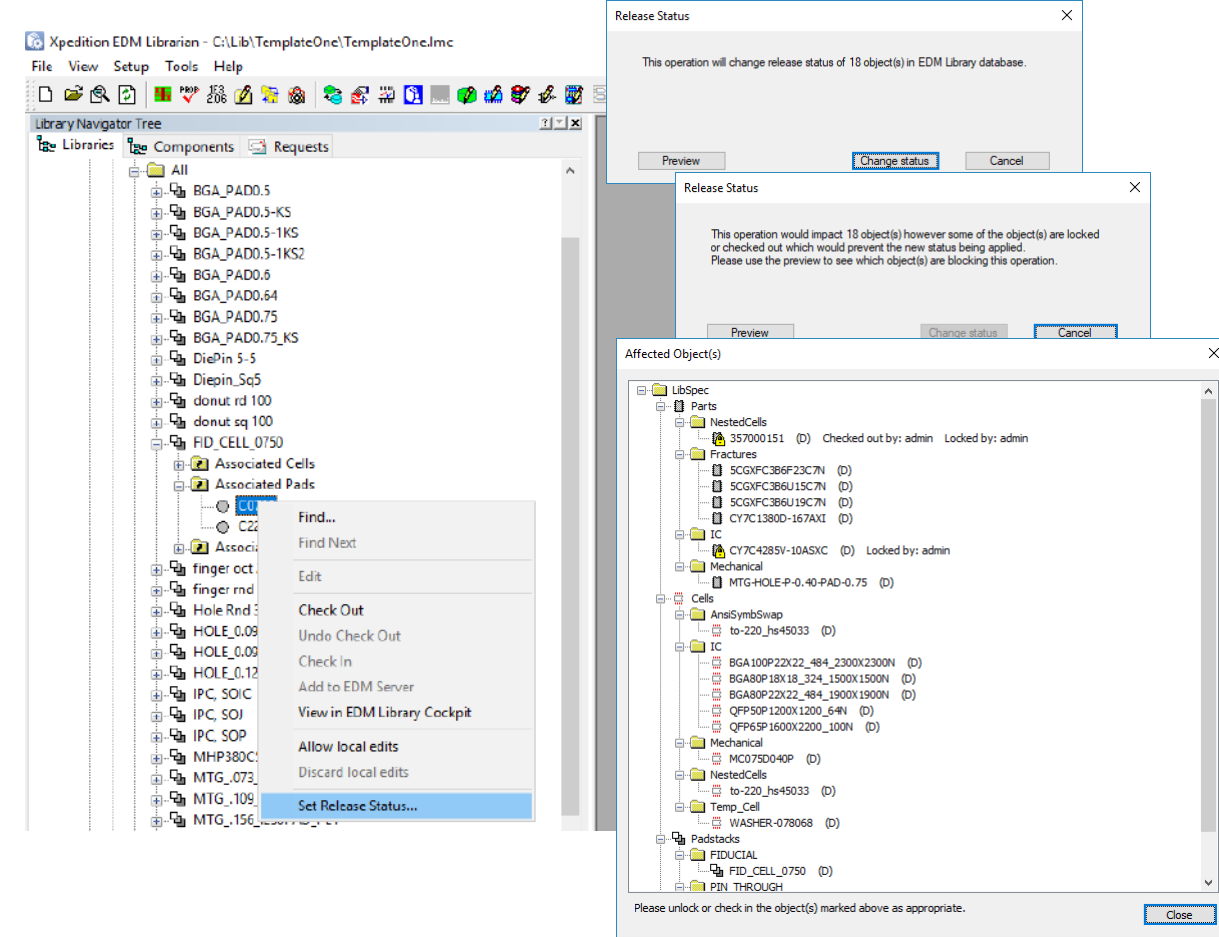
# Session sharing

- Before: Customers have to login twice when using EDM desktop and web applications unless they setup Single Sign-on based on Kerberos
  - Not every customer can use Kerberos as their IT does not support it
- Why: Usability improvement
  - Customers do not need to login when launching EDM Collaborate from desktop tools (Designer, Layout, EDM Design Cockpit)
  - Customers do not need to login when using EDM command line tools such EDX Client, Project Tools

# EDM LIBRARY

# Set Release Status Enhancements

- **What:** Ability to demote parent object status when demoting the child
- **Before:** It was possible to demote the status of a child object without updating the parent
- **Why:** This left an inconsistent set of status values across the hierarchy of objects in EDM Library
  - It was possible to end up with released cells referencing development padstacks
  - This is particularly problematic for the library distribution process





**EDX**

# EDX Client tool

**Update EDM metadata and/or project data without requiring an EDX queue to be exposed to both server and client machines.**

2.7

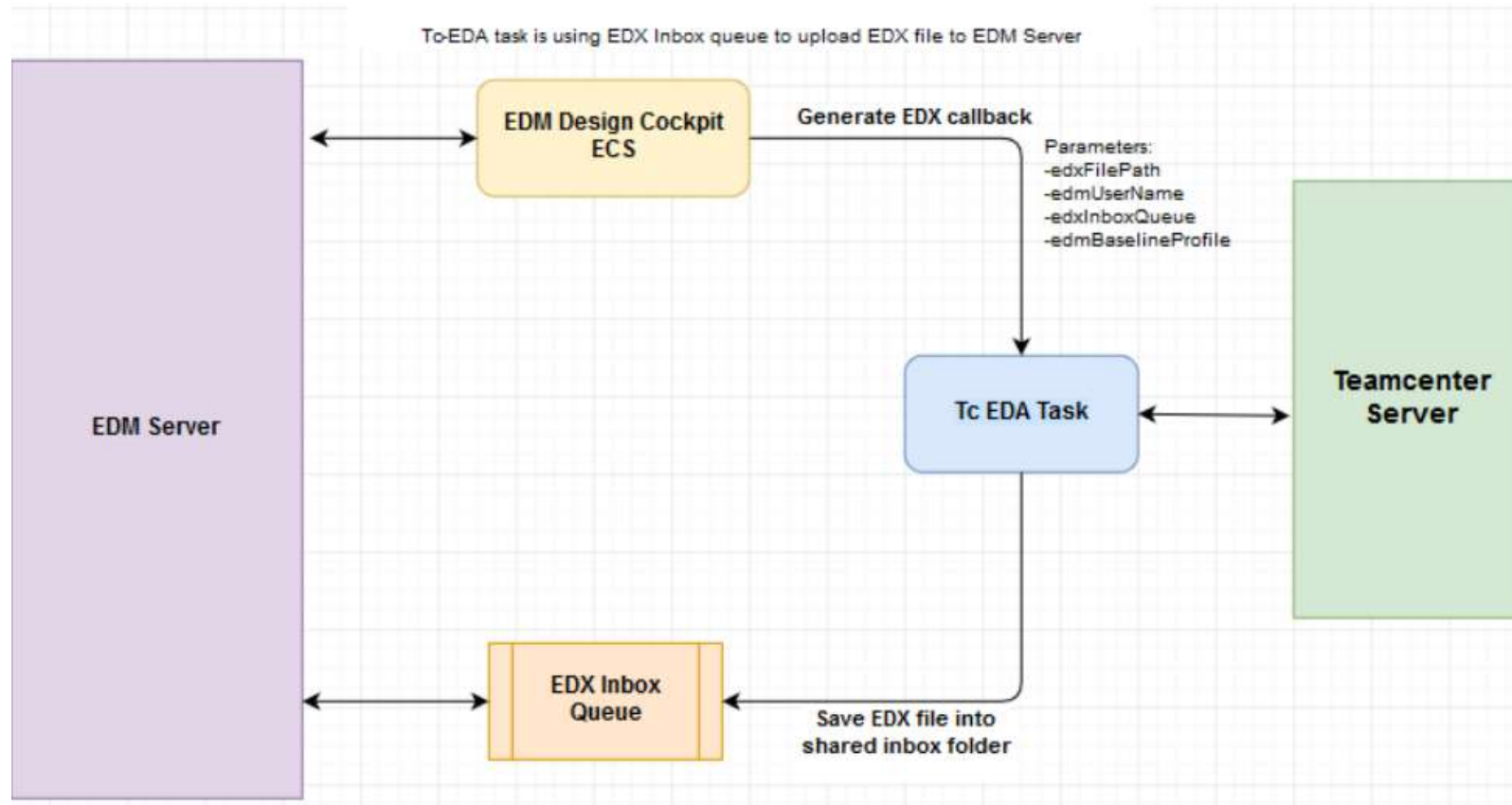
- What: Customer, Teamcenter integration software, or any customization which uses EDX Queue can send EDX file to EDX queue (through EDM server) to be processed according to queue configuration and return the result
  - It works for all configuration of EDX Inbox queue
    - different type of containers – not limited to design use cases
    - Support for auto-import and non auto-import
  - Return the result when entire process is completed and send back the result file
    - Exactly the same format as stored in EDX queue
  - All features when using EDX queue by coping to file system preserved
    - Follow the same queue priority
    - Managing data in EDX gadget,
    - Receiving notifications
- Before: EDX queue had to be exposed to both server and client machines
- Why1: Violates security policy for some enterprise customers
- Why2: Usability – EDM integrators can easily automate processes based on EDX
  - Updating design meta-data within EDM Design Cockpit or outside
    - Support for interactive login, login configuration, session token
  - Data distribution when the producer of the data is not EDM

# EDX Client tool

Update EDM metadata and/or project data without requiring an EDX queue to be exposed to both server and client machines.

2.7

- Before VX.2.7 Baseline driven EDM-Tc integration

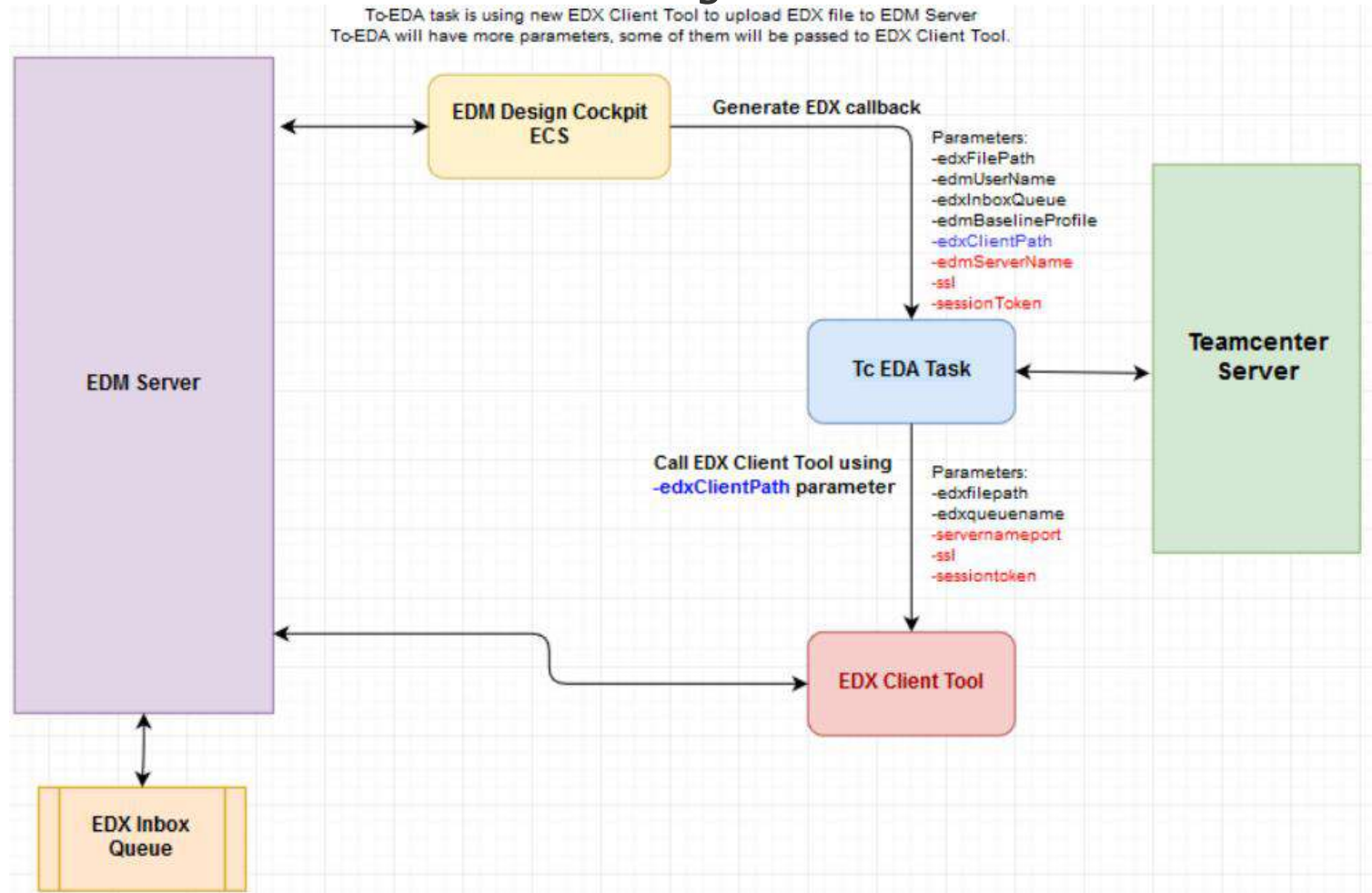


# EDX Client tool

Update EDM metadata and/or project data without requiring an EDX queue to be exposed to both server and client machines.

2.7

- VX.2.7 New Baseline driven EDM-Tc integration \*



\*This data & process flow can be used by other integrators. It is not limited just to Teamcenter

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# EDX Client tool

Update EDM metadata and/or project data without requiring an EDX queue to be exposed to both server and client machines.

2.7

- **edxClient parameter list:**

```
C:\MGCNoScan\EEVX.2.7\SDD_HOME\common\win64\bin>edxclient.exe
usage: EDX Client
  -configname <arg>      Login configuration name. Mutually exclusive with:
                        interactivelogin, servernameport, sessiontoken.
  -edxfilepath <arg>     Path to EDX file.
  -edxqueue <arg>        Name of EDX Queue.
  -interactivelogin      Interactive login. Mutually exclusive with
                        configname, sessiontoken, servernameport.
  -log <arg>             Optional. Path to the log file. If not provided the
                        result will be printed into standard output.
  -resultfile <arg>      Optional. Path to the file with results of EDX
                        Client operation. If not provided the result will
                        be printed into standard output.
  -servernameport        EDM Server name/IP and port i.e. localhost:31000.
                        Has to be provided together with sessiontoken.
                        Mutually exclusive with: interactivelogin,
                        configname.
  -sessiontoken <arg>    Login session token. Has to be provided together
                        with servernameport. Mutually exclusive with:
                        interactivelogin, configname.
```

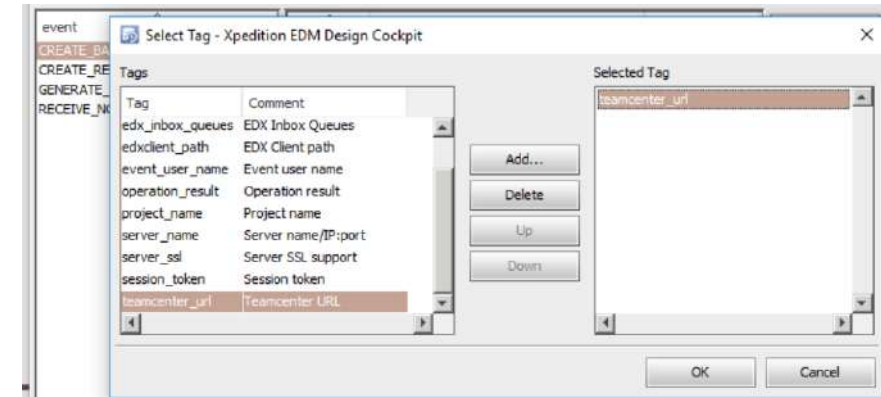
*\*Certain symbols such as "|", "&", ">", "^" etc. when used in parameters (i.e. -edxqueue tc->edm) might not work as expected on Windows OS. Similar situation exists on Linux.*

# **EDM – TC INTEGRATION**

# Teamcenter URL - Prevent User from Overriding the Teamcenter Connection

2.7

- What: EDM - Teamcenter EDA functionality can enforce users to login to the same Teamcenter server as configured in EDM Server Utilities
  - EDM Design Cockpit will provide a new callback parameter, that will pass Teamcenter URL
  - TcEDA will use this parameter to block possibility to change the server for general users
    - Some users e.g. project leaders may want to switch to between server when testing
- Before: Currently TcEDA task always requires to provide Teamcenter URL during the first login
- Why1: Users should use the same configuration in all applications
- Why2: Usability – EDM integrators can easily automate processes based on EDX
  - Updating design meta-data
  - Usability improvement for non-SSO configuration



**EDM SERVER**



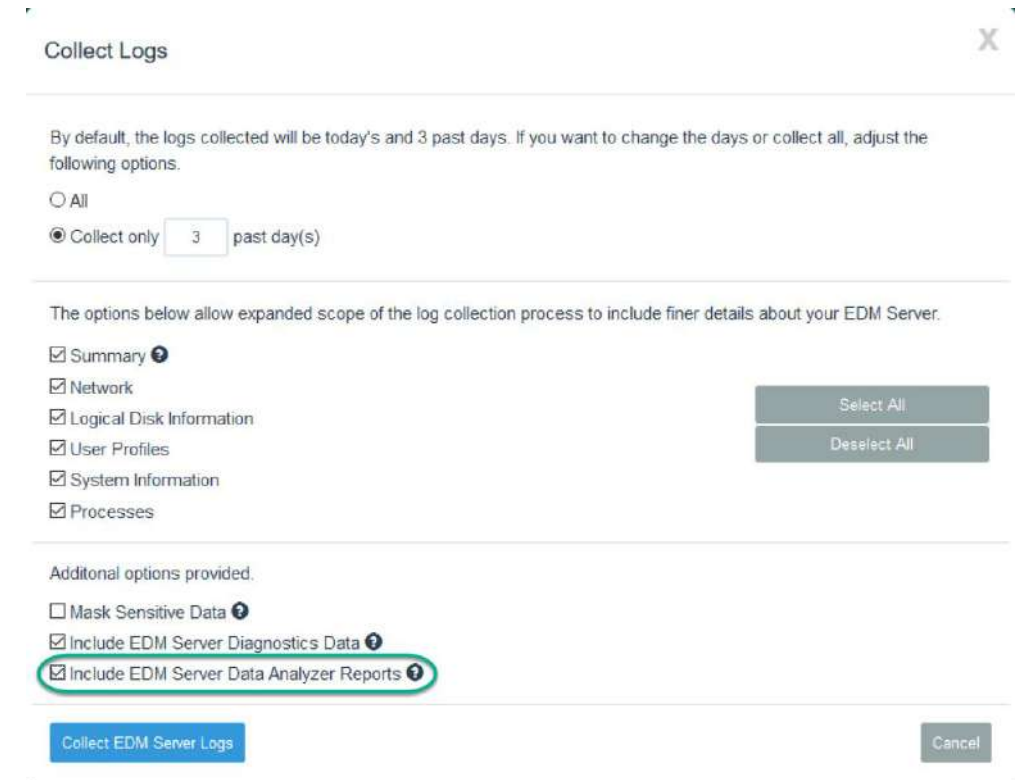
# EDM Server - Diagnostics and In-field Debugging

- Prechecks added on Deploy/Update to verify Authkeys in Distributed EDM Server
- Maintain the AlertMonitor State on ServerRestart/Update
- Pre-Deploy Check now verifies all Oracle Parameters required in documentation
- Pre-Deploy Check verifies the write speed to the Temp folder
- Added more Linux Pre-deploy checks
  - Memlock – Based on # of Users
  - Threads-max -  $\geq$  nproc
  - Pid-max -  $\geq$  nproc
  - Max\_map\_count -  $\geq$  Total memory in KB/128

# EDM Server - Data Analyzer Utilities Enhancements

2.7

- Data Analyzer now has a “verbose” logging option
- Move all DA results from Satellite Vaults to Master Server for single location for all reports
- DiagCollectLogs now collects reports
- MgmtBackup now runs DA report



Collect Logs

By default, the logs collected will be today's and 3 past days. If you want to change the days or collect all, adjust the following options.

☐ All

☒ Collect only  past day(s)

The options below allow expanded scope of the log collection process to include finer details about your EDM Server.

☒ Summary ?

☒ Network

☒ Logical Disk Information

☒ User Profiles

☒ System Information

☒ Processes

Select All

Deselect All

Additional options provided.

☐ Mask Sensitive Data ?

☒ Include EDM Server Diagnostics Data ?

☒ Include EDM Server Data Analyzer Reports ?

Collect EDM Server Logs

Cancel

# EDM Server – Enhanced Log File Management

- Enhancements upon the changes made in VX.2.6
- Multi-threading DiagCollectLogs for faster collection
  - DiagCollectLogs now includes Authkeys
- Log Summary improvements and additional information
  - Includes Web Admin Settings
  - Includes EV's set on the system
  - DiagLogScanner automatically run and results provided
  - DiagTroubleshooter automatically run and results provided
    - Located in \Logs\Summary\LogAnalysis.txt
  - Last reboot of system identified
  - Collects Oracle configuration settings
- More flexible archiving of logs
  - Can set the frequency for when logs are archived and for how long they are archived

# EDM Server - Database Re-Index

- In Customer EDM Server investigations we found a need to verify the indexes in our Databases
  - Missing Indexes caused deadlock errors for clients
- We now verify indexes exist and that they are correct
- Provide ability to fix bad indexes or re-index entire database
  - Re-indexing of entire database can be time consuming
- Diagnostics Dashboard Tab provides breakdown of all indexes and all of the re-indexing capabilities

Status of Database Indexes

Total Indexes: 1985 [Re-index All](#) ?

Valid	1985
Invalid	0
Missing	0
Ignored	0
Should Not Exist	0
Unknown	0

Status of Database Indexes

Total Indexes: 1985 [Re-index All](#) ?

Displaying: All [Edit Filter](#)

Index Name ↑↓	Table Name ↑↓	Column Name(s) ↑↓	Status ↓ ?
idx_core_toolreg_activities	core_activity	tool_id	VALID
idx_core_activity_feature	core_activity_feature	activity_id	VALID
authDiscIdx	core_authority	authority_type	VALID

# **APPENDIX: DATA MODEL CHANGES SINCE VX.2.6**

# VX.2.6 -> VX.2.7

## ■ EDM Library

- Tiles view and custom component image support
  - New invisible, internal class Picture (109) has been created to OOTB datamodel
  - List of references to Pictures in Component class has been added
- Component Synchronization
  - Characteristic's label have been changed (036comp\_sync\_characteristics)
- Trash Bin
  - Two internal characteristics have been added to Managed Block class (299) has been added (299delete\_status, 299trash\_bin\_ref)

# VX.2.6 -> VX.2.7

---

- EDM Admin & Infrastructure
  - Changes required by migration to WildFly 10
- EDM Design:
  - Added data model for Trash Bin functionality
- EDM Collaborate
  - Added data model for Tiles View functionality (image cache)



[www.mentor.com](http://www.mentor.com)

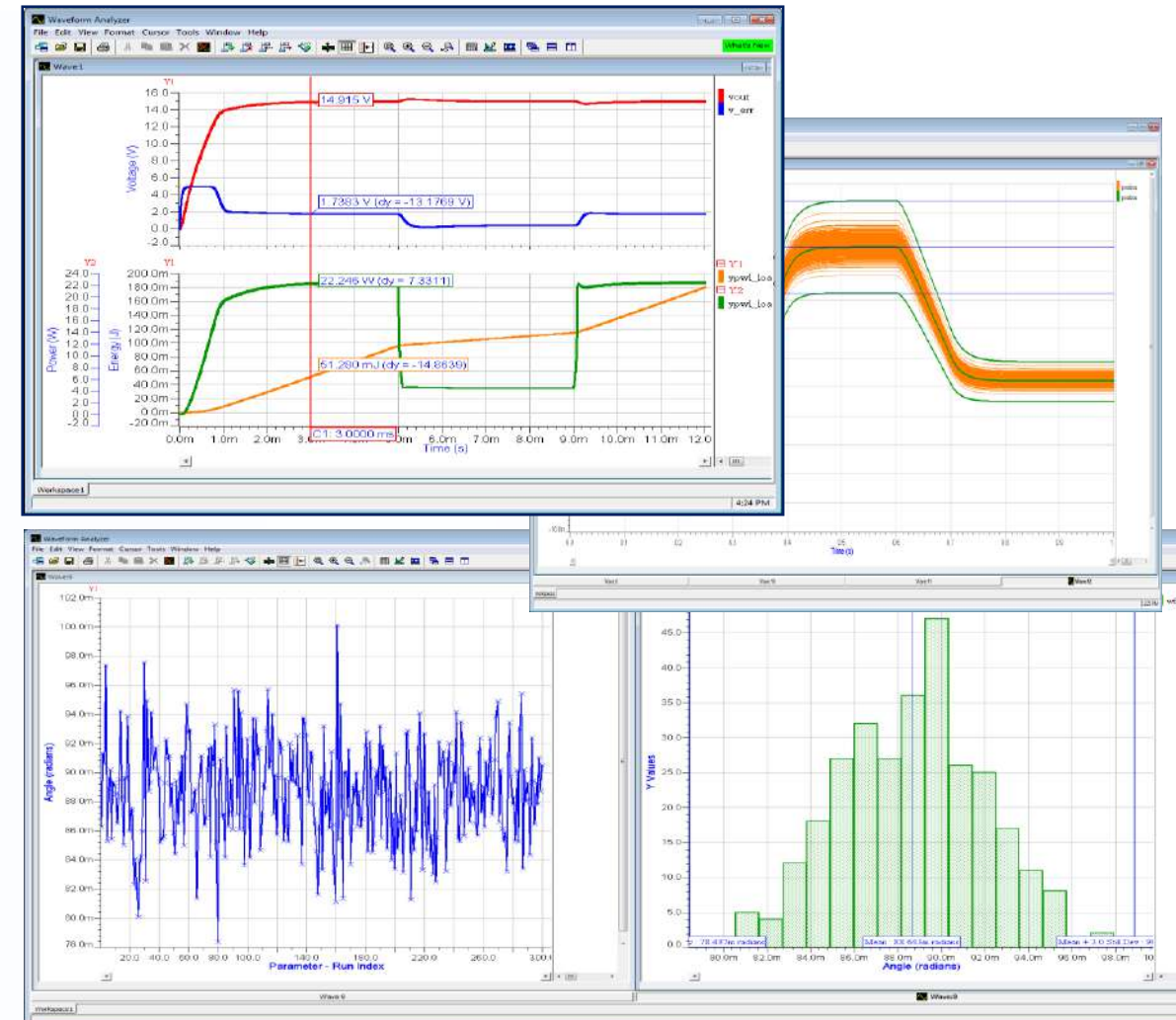


# Xpedition AMS

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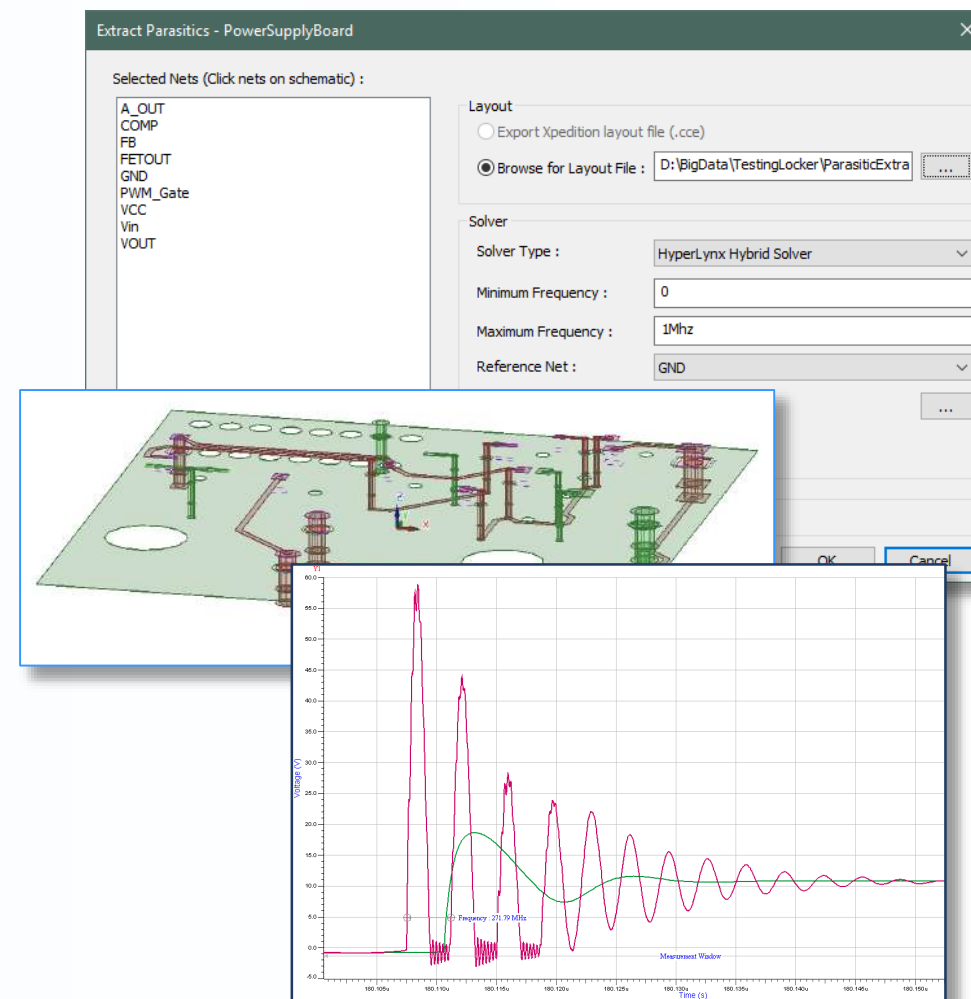
# 64-Bit Simulator

- Replace existing 32-Bit with 64-bit simulator (AMS/Eldo).
- Aligns with OS support strategy.
- Allows consumption of 64-Bit OS available memory.
- Enhancements
  - Improve convergence, capacity, performance
  - Multi-core support
  - Single license check invocation of multi-run
  - FFT analysis support



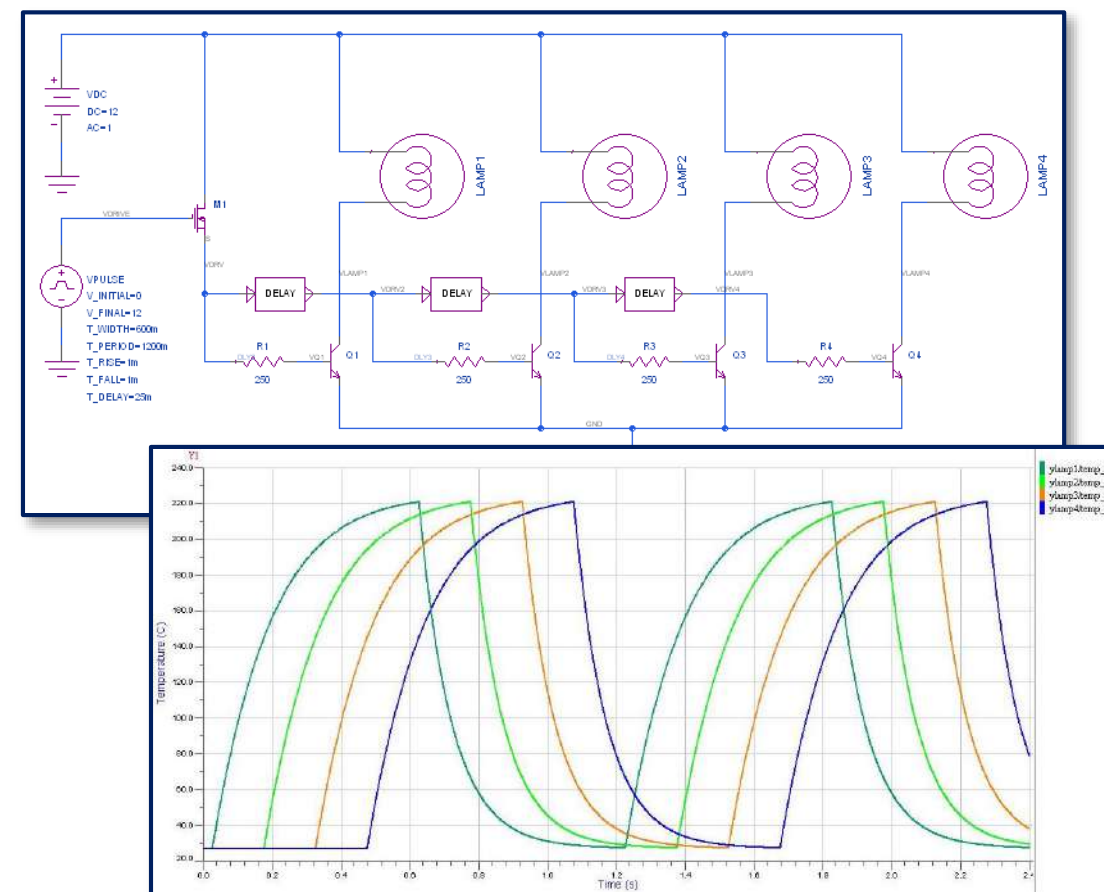
# Parasitic Extraction & Simulation (PE&S)

- What does PE&S do?
  - Integration with HyperLynx Advanced Solvers
  - Adds board parasitics to simulation netlist
- Before
  - Had to simulate entire design
  - The cce file used may be out of sync
- Enhancements
  - Simulate part of a design with parasitics added to netlist
  - Checks cce file time stamp and updates if needed



# Model Mapping Improvements - Schematic Editing, Mapping & Netlister

- Users can map any schematic symbol to any simulation model
  - Mechanism: SimDB files
- Before
  - Symbol properties and SimDB mapping mostly limited to Block level properties
- Enhancements
  - SimDB mapping works with Instance level properties
  - Edit Model Properties dialog works with Instance level properties
  - Netlister uses Instance level properties when present



# Performance Improvements

- Netlisting with VHDL-AMS elements is more efficient
- Dialog invocation is faster
- Design auto-load now optional and can be controlled by the user

# Implemented IDEAS

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# Implemented Customer IDEAS

## ■ Addressed 21 Customer Requested IDEAS in Xpedition Enterprise

Idea #	Product	Category	Title
15217	EDM Design	Design Data & Library Data Management	EDM Design needs a "Recycle Bin"
10654	Xpedition Designer	Printing/PDF	Overwriting existing pdf warning - D12198
13586	Xpedition Designer	Schematic Entry	DRC check pin direction should use the values out of the schematic - D11686
16887	Xpedition Designer	xSD Systems Designer	xSD: Sort/Filter option in Manage Boards Window
2524	Xpedition Designer	FPGA-PCB Optimization, Schematic Entry	IOPT should update pintype of the symbols placed in the schematic - D15258
16609	Xpedition Designer	Schematic Entry	Close all tabs / close other tabs
19358	Xpedition Designer	Schematic Entry	The Push command is on RMB but not the Pop.
8732	Xpedition Designer	Schematic Entry	Replace "Grid On/Off" button by "Snap to Grid" and "Grid Visibility" separate Buttons - D14477
14699	Xpedition Layout	Miscellaneous	Net names on Pins and Vias
5004	Xpedition Layout	PCB & Package xPCB Layout	Pin names and netname visible on pads/tracks - D14609
4628	Xpedition Layout	Constraint Management	Need the possibility to add different Net0 nets to different Net Classes - D11952
12621	Xpedition Layout	Manufacturing & Documentation	Construction lines in drawing editor - D9426
12706	Xpedition Layout	Manufacturing & Documentation	Use same requester for odb++ in FablinkXE as in EE - D12610
14316	Xpedition Layout	Manufacturing & Documentation	Custom drill symbols should be appropriately scaled in the drill charts - D12464
4073	Xpedition Layout	Manufacturing & Documentation	Need ability to map Expedition "board specific" features with user-defined layer for ODB++ artwork - D9146
19283	Xpedition Layout	Manufacturing & Documentation	Enhancement for selectable Copper Balancing setup definitions.
15140	Xpedition Layout	PCB & Package xPCB Layout	display netname on PAD
17550	Xpedition Layout	PCB & Package xPCB Layout	Extension of the Route Obstruct properties by net name (or net class)
9163	Xpedition Layout	PCB & Package xPCB Layout	Enhanced route obstruct to limit routing by net name or net class name. - D7828
9228	Xpedition Layout	Viewing & Markup	Extended Print should have the capability to print with Display Control net highlight colors - D13246
2466	HyperLynx PI	Simulation and Analysis	VRM sensing point - D5867

