

# SOLIDWORKS Large Assemblies





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# Sisältö (esitysajat videolla)

- Johdanto (2:38)
  - Mitä tapahtuu kokoonpanoa avattaessa?
  - Mitkä asiat hidastuttavat kokoonpanon käsittelyä?
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  - Design Tree haku kokoonpanon hierarkiasta
  - Lock Rotation sylinterimäisen muodon lukitus
  - Drawing Performance keventävät asetukset
  - Treehouse ison kokoonpanohierarkian käsittely
  - Mallien sijainti PDM, pilvi, verkkolevy ja lokaali











### Ovatko kokoonpanosi raskaita käsitellä?







Mitä tapahtuu kokoonpanoa avattaessa?

- 1. Osat, komponentit ja alikokoonpanot ladataan muistiin
- 2. Kaikki muuttuneet osat ja kokoonpanot päivittyvät
- 3. Mate –ehdot ratkaistaan ja osat paikoittuvat
- 4. In-Context ja kokoonpanopiirteet päivittyvät
- 5. Grafiikan päivitys, kokoonpano on valmiina käytettäväksi





Mitkä asiat hidastuttavat kokoonpanon käsittelyä?

- Uuden osan lisääminen
- Mate –ehtojen lisääminen tai muokkaaminen
- Osien editointi (In-Context)
- Kokoonpanopiirteiden editointi
- Kokoonpanon päivitys (Rebuild/Forced Rebuild)
- Zoomaus ja pyöritys
- Tallennus



### **Assembly Modes**

- Large Design Review (kevyin) avaa pelkästään graafisen datan ✓ Edit Assembly
- - ✓ Load hidden components
  - ✓ Use Speedpak
  - ✓ Use Large Assembly Settings
- Resolved (raskain) avaa kaiken datan muistiin 🥵
  - ✓ Load hidden components
  - ✓ Use Speedpak
  - ✓ Use Large Assembly Settings

















## **3 SOLID**WORKS

### Assembly Modes – Large Design Review

System Options - Assemblies			×	State Company
System Options		हिंदुरे Search Options	Q	$\leftarrow \rightarrow \checkmark \uparrow$ $\blacksquare$ « Malle » 00 Square R » v $\eth$
General MBD Drawings - Display Style - Area Hatch/Fill - Performance Colors Sketch - Relations/Snaps Display Selection Deformance Assemblies External References Default Templates File Locations FeatureManager Spin Box Increments View Backup/Recover Touch Hole Wizard/Toolbox File Explorer Search Collaboration Messages/Errors/Warnings Import Export	✓ Move components by dragging         ✓ Optimize component placement when adding mates         ✓ Allow creation of misaligned mates         Save new components to external files         Update model graphics when saving files         ✓ Automatically check and update all components in Large         Change mate alignments on edit:         Update out-of-date Speedpak configurations when saving fil         ✓ Opening a large assembly         ✓ Use Lightweight mode and Large Assembly Settings with the number of components exceeds:         ✓ Use Large Design Review mode when the number of components exceeds:         ✓ Do not save auto recover info         Do not rebuild when switching to assembly window         ✓ Hide all planes, axes, sketches, curves, annotations, etc.         ✓ Do not display edges in shaded mode         Do not preview hidden components         □ Disable verification on rebuild         ✓ Optimize image quality for better performance         □ Suspend automatic rebuild         Envelope Components         □ Automatically load lightweight         □ Load read-only	Design Review mode   Always   es:   All   nen   500   2000		Organize  New folder <ul> <li>Quick access</li> <li>Desktop</li> <li>Downloads</li> <li>Scenes Appearances and Deca</li> <li>Oz800.SLDASM</li> </ul> <ul> <li>Documents</li> <li>AIPWorksData</li> </ul> Mode <li>Mode</li> <li>Ightweight</li> <li>Resolved</li> Velcome - SOLIDWORKS   Ime   Recent   Learn   Alerts   Documents   Folders   Quick filter:   Image: Components
Reset				Mode: Large Design Review
		OK Cancel	Help	Display State: All Components References





## **S SOLID**WORKS

## Assembly Modes – Lightweight

System Options - Assemblies	×	💀 Open X
System Options	နိုင္ပိန္ Search Options Q	$\leftarrow \rightarrow \checkmark \uparrow$ ] « Malleja » 00 Square Robot Top Level Assembly v 🖸 $\checkmark$ Search 00 Square Robot Top
General MBD Drawings Display Style Area Hatch/Fill Performance Colors Sketch Relations/Snaps Display Selection Performance Assemblies External References Default Templates File Locations FeatureManager Spin Box Increments View Backup/Recover Touch	✓ Move components by dragging         ✓ Optimize component placement when adding mates         ✓ Allow creation of misaligned mates         Save new components to external files         Update model graphics when saving files         ✓ Automatically check and update all components in Large Design Review mode         Change mate alignments on edit:         Allow creation of date Speedpak configurations when saving files:         ✓ Opening a large assembly         ✓ Use Lightweight mode and Large Assembly Settings when the number of components exceeds:         ✓ Use Large Design Review mode when the number of components exceeds:	Organize New folder     Quick access     Desktop   Components   Scenes Appearances and Decals   29/10/2020 10:46   File folder   Ocuments   Ocesource   AIPWorksData     Mode   Large Design Review   Load hidden components   Lightweight   Use Large Assembly Settings     Variable Review   Load hidden components   SollDWORKS Assembly (*.asm)   Configuration:   Default   Open
Touch Hole Wizard/Toolbox File Explorer Search Collaboration Messages/Errors/Warnings Import Export Keset	Large Assembly Settings <ul> <li>Do not save auto recover info</li> <li>Do not rebuild when switching to assembly window</li> <li>Hide all planes, axes, sketches, curves, annotations, etc.</li> <li>Do not display edges in shaded mode</li> <li>Do not preview hidden components</li> <li>Disable verification on rebuild</li> <li>Optimize image quality for better performance</li> <li>Suspend automatic rebuild</li> </ul> <li>Envelope Components         <ul> <li>Load read-only</li> </ul> </li> <li>OK Cancel Help</li>	Performance         Home       Recent       Learn       Alerts         Decuments       Folders         Quick filter       Filter by name         Decuments       Filter by name         Quick filter       Filter by name         Decuments       Filter by name         Quick filter       Filter by name         Decuments       Filter by name         Documents       Filter by name         Documents       Filter by name         Default Templates       Spin Box Increments         View       Backup/Recover         Touch       Holde Wizard/Toolbox         File Explorer       Spin Box Increments         Spin Box Increments       View Sages/Front Mermings         Messages/Front Mermings       Do not save auto recover info         Messages/Front Mermings       Do not taplay edges in shaded mode         Do not taplay edges in shaded mode       Do not review hidden components         Disable verification on rebuild       Optimize image quality for better performance         Use Speedpak       Suspend automatic rebuild





### Assembly Modes – Resolved

State of the second sec	×	Welcome - SOLIDWORKS
$\leftarrow \rightarrow \checkmark \uparrow$ . Malleja > 00 Square Robot Top Level Assembly >	✓ U Search 00 Square Robot Top	
Organize   New folder		Home <b>Recent</b> Learn Alerts
Quick access            Desktop            Components              Downloads                 Documents                 AIPWorksData            Mode              Lightweight            Use Spee                 O2800.SLDASM	Date modified       Type       Size         30/10/2020 09:22       File folder         29/10/2020 10:46       File folder         30/10/2020 08:35       SOLIDWORKS Assem       43,762         Hen components       Display State:       All Components         Display State:       All Components       Image: SoLIDWORKS Assembly C*.asm         Assembly Settings       Quick Filter:       Image: SoLIDWORKS Assembly (*.asm         Vipdate out-of-date Speedpak configurations when saving files:       Open       Cancel         Update out-of-date Speedpak configurations when saving files:       Update out-of-date Speedpak configurations when saving files:         Update out-of-date Speedpak configurations when saving files:       Update out-of-date Speedpak configurations when saving files:         Update out-of-date Speedpak configurations when saving files:       Update out-of-date Speedpak configurations when saving files:         Update out-of-date Speedpak configurations when saving files:       Update out-of-date Speedpak configurations when saving files:         Update out-of-date Speedpak configurations when saving files:       Image: Speedpak configurations when saving files:         Update out-of-date Speedpak configurations when saving files:       Image: Speedpak configurations when saving files:         Update out-of-date Speedpak configurations when saving files:       Image: Speedpak configurations when saving files:	Documents       Folders         Quick filter:       Image: Construction of the second of the se





### Mitä Assembly Modes –vaihtoehtoja käytät?



## S SOLIDWORKS

### Performance & Image Quality

- Valitse System Options -> Performance, tässä voit vaikuttaa esimerkiksi mallien yksityiskohtien näkyvyyteen, Mate –ehtojen nopeuteen sekä laittaa ruksin Enhanced graphics performance –ominaisuuteen
- Kohdassa Image Quality voit asettaa piirtotarkkuuden tasot sekä varjostetulle- että rautalankanäkymälle  $\bullet$

System Options			
General MBD Drawings - Display Style - Area Hatch/Fill - Performance Colors Sketch - Relations/Snaps Display Selection Performance Assemblies External References Default Templates File Locations FeatureManager Spin Box Increments View Backup/Recover Touch Hole Wizard/Toolbox File Explorer Search Collaboration Messages/Errors/Warnings Import Export	Verification on rebuild (enable advanced body checking)   Ignore self-intersection check for some sheet metal features   Transparency   High quality for normal view mode   Curvature generation:   Off   More (slower)   Level of detail   Assemblies   Automatically load components lightweight   Always resolve subassemblies   Check out-of-date lightweight components:   Pornpt   Resolve lightweight components:   Pornpt   Off   Fast   Slow   Mate animation speed:   Update mass properties while saving document   Use software OpenGL   Magnetic mate pre-alignment   Co To Image Quality	Document Properties - Image Qua System Options Document Propertie Drafting Standard Annotations Dimensions Virtual Sharps Tables DimXpert Detailing Grid/Snap Units Model Display Material Properties Image Quality Sheet Metal Weldments Plane Display Configurations	Iity         es         Shaded and draft quality HLR/HLV res         Low (faster)         Deviation:       0.12940274mm         Optimize edge length (higher quality HLR/HLV)         Apply to all referenced part docum         Save tessellation with part docum         Wireframe and high quality HLR/HLV         Low (faster)         Precisely render overlapping geo         Improve curve quality at higher s         Use isometric, zoom to fit view for d         Use pre-2009 tangent edge definition





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### **Performance – Evaluation**

- Valitse Evaluate -> Performance Evaluation, täällä voit tarkastella kokoonpanon tehokkuuteen liittyviä asioita
- Klikkaa lopuksi Assembly Visualization ullet

🚯 Performance Evaluation - Facility_&.SLDASM	>				
▲ Open Performance	A report of the last assembly rebuild is available, showing time taken by significant components and features.				
A Details of the Open Document File:	Show These Files				
	Settings Performance				
File Name Configuration Open Time	Settings Performance				
Conveyor_&.SLDASM Default_speedpak 0.70	Large Assembly Settings				
Overturning Mechanism_&.SLDASM   Default   0.34	The total number of resolved components in this assembly is 124, the large assembly threshold is 500 components.				
Show These Files	Large Assembly Settings are disabled.				
	i Statistics				
Previous Version References     As of F2 documents in this assembly have not been undated to the latest version of SOUDWORKS (until they are					
converted this will affect file open performance).	(i) Total Number of Components in Facility_&: 124				
Show These Files	Parts:				
	Part Components: 110				
🛦 Modified On Open	Unique Part Files: 43				
7 documents in this assembly were not up-to-date when the assembly was opened and were updated during open.	Unique Part Configurations: 42				
Show These Files	Number Of Bodies: 110				
	Subassemblies:				
A Display Performance	Subassembly Components: 14				
	Unique Subassembly Configurations: 9				
🛕 Graphics Triangles	Unique Subassembly Files: 9				
The number of graphics triangles is an indicator of the level of detail in a component. A high value can indicate a	Components:				
component with excessive detail such as 3D modeled threads, grates or extruded text; a simplified representation	Resolved Documents: 52				
can improve assembly performance. The results below omit components where the sum of graphics triangles for all	Number Of Top Level Components: 5				
instances is under 5,000.	Resolved Components: 124				
Granhics Triangles Details	Lightweight Components: 0				
Graphics manyles Details	Graphics Components: 0				
File Name Configuration Quantity Total Triangles	Suppressed Components: 0				
Principal Configuration     Quantity rotal mangles       P     2 holt flange % SLDDDT     Default     4     6060	Hidden Components: 28				
Default 4 0900	Virtual Components: 0				
rod_guide_&.sLDPRI Default 4 6360	Envelope Components: 0				
Show These Files	Assembly				
	Maximum Depth: 4				
Rebuild Performance	Number Of Total Evaluated Mates: 10				
	Top Level Mates: 11				
U Circular Reference	Flexible Subassembly Mates: 0				
No circular references found. Unable to check lightweight, defeature or speedpak components for circular					
Note: Components of suppressed subassemblies are excluded from these statistics.					
• Mate 11 mates are evaluated when this assembly is rebuilt	Assembly Visualization Save Conv Close Help				
ו דוומנכי מוב בעמוטמנכט שווכוד נוווא מאזכווואוץ וא ובאטוונ.	histing visualization save copy close help				





# Assembly Visualization (Performance Analysis)

- Jos käynnistit **Assembly Visualization** –toiminnon suoraan **Evaluate** –työkalupalkin kautta niin valitse aluksi kuvan  $\bullet$ mukaisesti Performance Analysis
- Nyt voit tarkastella esimerkiksi eri mallien graafisten elementtien määrää, lataus- tai päivitysaikoja ja koittaa sitä ulletkautta selvittää syitä kokoonpanon mahdolliseen hitauteen





bly Visualization		<b>?</b> ×
Total Graphics Triangles 🕨	SW-Open Time 🕨	SW-Rebuild Time
500.00	0.05	0.06
6360.00	0.05	0.05
1024.00	0.05	0.00
6960.00	0.04	0.12
3810.00	0.04	0.20
2764.00	0.03	0.05
396.00	0.03	0.00
1188.00	0.03	0.03
830.00	0.03	0.08
2838.00	0.03	0.11
1010.00	0.03	0.08
128.00	0.03	0.03
256.00	0.03	0.02
512.00	0.03	0.03
392.00	0.03	0.03
2556.00	0.03	0.19
1960.00	0.03	0.03
96.00	0.03	0.02
1324.00	0.03	0.01
1324.00	0.03	0.03
392.00	0.03	0.03
392.00	0.03	0.03
1496.00	0.03	0.05
256.00	0.03	0.03

🚯 PIV END PLATE &(Def.,



- Isolate –toiminto keventää käsittelyä piilottamalla tarpeettomat osat pois näkyvistä
- Tätä voit hyödyntää esim. osien/alikokoonpanojen liittämisessä (Mate)





### at osat pois näkyvistä ä (**Mate**)

# S SOLIDWORKS Configurations

- **Configurations** –toiminnolla voit luoda keveitä osakokonaisuuksia ja räjäytysesityksiä ullet
- Konfiguraatiot voivat sisältää sekä piilotettuja että suppressoituja osia ja alikokoonpanoja ullet







- Tools -> Defeature -- toiminnolla voit luoda yksinkertaistetun geometriamallin valitsemistasi osista usealla eri metodilla
- Valitut osakokonaisuudet voi jakaa eri ryhmiin (Add Group)

🖫 Defeature	?	🖫 Defeature
×		
		Step 1: Define Groups
Choose a Defeature Method	^	Create groups of components and bodies to use to generate silhouette geometry. Then, select a simplification method and
Simplify geometry: selectively remove components and geometry details from the top level assembly. for small to medium assemblies where the simplifi model must closely match the original.	s Best ed	Groups
Silhouette: create a highly-simplified part from the silhouette outlines of components and bodies. Best simplifying large and complex assemblies.	for	<ul> <li>Merge groups after this step</li> <li>Highlight processed bodies</li> </ul>
Defeature Method	^	Add a Group % Group1 (3085-4@02856/03061-1@03085 03060-2@02856 (3060-2@02856) (3060-2@0286) (3060-2@0286) (3060-2@0286) (3060-2@0286) (3060-200-2000) (3060-200-200) (3060-200-200) (3060-200-200) (3060-200-200) (3060-200-200)
		Add Group Reset
		Simplification Method
		Enclose in one body
		Ignore small bodies (% of assembly size)
		0.00%
		Orientation
		Use multiple directions













🖫 Defeature	?	
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Step 1: Define Groups	^	
Create groups of components and bodies to use to go silhouette geometry. Then, select a simplification met orientation.	enerate thod and	
Groups	^	
Group1 Group2 Group3 *	-	
Merge groups after this step		
Highlight processed bodies		
Edit a Group	~	
Sroup3		
<ul> <li>Image: State of the state of t</li></ul>		
Simplification Method	^	
None (Copy Geometry)	×.	
Enclose in one body		
Ignore small bodies (% of assembly size)		
0.00%		
Orientation	^	
Use multiple directions		





🖫 Defeature	History
× 🔄 🔿	Annotati
Step 1: Define Groups	Markups
Create groups of components and bodies to use to generate silhouette geometry. Then, select a simplification method and orientation.	Top Plane
Groups	Right Pla
Group1 Group2 Group3 Group4 *	Axis1
	Brush Su
Highlight processed bodies	
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Status Group4	Shaft Co
Image: Contract of the second secon	<ul> <li>Cover</li> <li>Front an</li> <li>Cable Lo</li> <li>Mates</li> <li>Cable and b</li> </ul>
OK Cancel Apply	<ul> <li>Cover Pa</li> <li>Support</li> <li>Bushing</li> <li>Motor M</li> <li>Motor M</li> </ul>
Simplification Method  Polygon Outline  V	Motor M
Enclose in one body	Cover Ha
0.00%	Cover Ha  Cover Ha  Plastic Sh
Orientation       Image: Second s	<ul> <li>Plastic Sh</li> <li>Rubber S</li> <li>Rubber S</li> <li>Shield Se</li> </ul>
Use multiple directions	▶ 🖬 Shield Se





🖫 Defeature	1			
×	)			
Step 1: Define Groups				
Create groups of components and bodies to use to generate silhouette geometry. Then, select a simplification method and orientation.				
Groups				
Group1 Group2 Group3 Group4 Group5 *				
Merge groups after this step				
Highlight processed bodies				
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00047-3@02856 SHAFT COUPLING, FLEXIBLE, BELLOWS, 8MM X 8MM B				
Simulification Mathed				
Cylinder ~				
Enclose in one body				
Ignore small bodies (% of assembly size)				
0.00%				
Orientation				







### SW 2021 versio tarjoaa mahdollisuuden tallentaa luotu kevyt geometriamalli yhdeksi konfiguraatioksi!

🖫 Defeature		
<ul> <li>✓ ×</li> <li>(⇒)</li> </ul>	Configurations	
<ul> <li>Center Complete</li> <li>Defeature Complete</li> <li>The Defeature operation completed successfully. Select a results option for the simplified model.</li> <li>Results</li> <li>Save as a new document</li> <li>Link to original</li> <li>Create a new configuration</li> <li>Include top level reference geometry</li> <li>Publish to 3D ContentCentral</li> <li>Store settings for future use</li> </ul>	Configurations • • • 02856 Configuration(s) (Default_defeature) • • • • • • • Default [ 02856 ] • • • • • • • • • • • • • • • • • • •	







- Voit määrittää Display Style asetukset esim. kokoonpanokohtaisesti Feature Manager Design Tree välilehden nuolinäppäimestä avautuvan valikon ٠ avulla
- **Configurations** –välilehden alaosassa näkyy **Display State** –osio, johon voit luoda uuden näkymän ja linkittää sen aktiivisena olevaan konfiguraatioon •
- Kokoonpanon kevyen käsiteltävyyden kannalta Transparency näkymän käyttöä kannattaa rajoittaa mahdollisuuksien mukaan ۲







Kun aktivoit konfiguraation, johon olet linkittänyt Display State – näkymän niin paneelin alaosassa ei näy tässä tapauksessa muita vaihtoehtoja.







- Tätä ominaisuutta kannattaa suosia silloin, kun on tarve tuoda kompleksinen iso alikokoonpano ylemmälle tasolle kevyempänä • graafisena esityksenä säilyttäen kuitenkin mahdollisuudet Mate –ehtojen antamiseen
- SpeedPak luodaan suoraan jostain tietystä konfiguraatiosta •









Muu geometria esitetään "haamuna" tai poistetaan kokonaan (Remove ghost graphics) ullet







## Drawing Modes – Quick View

Quick View –tilaan avatulle piirustukselle ei voi tehdä mitään operaatioita riippumatta siitä, onko piirustus avattu Open vai **Open Read-only** valinnalla!

Welcome - SOLIDWORKS	Image: Model Projected Auxiliary Section Removed Detail Relative View     Image: Model Projected Auxiliary Section View <th< th=""><th>t Break Crop Alternate View View Position</th></th<>	t Break Crop Alternate View View Position
Home Recent Learn Alerts	Drawing View Lavout Apportation Skotch Markup Evaluate SOLIDWOR	View View View View View
<b>Documents</b> Folders	Drawing view Layout Annotation Sketch Markup Evaluate SOLIDWOR	AS Add-Ills Sheet Format
Quick filter: 🚯 🕸 📰 🏣 Filter by name	574	1418
02800.SLDDRW Open       Open       Open Read-only       Show in Folder       Mode: Quick View       Configuration:		
Display State: References		
	Revision Description	Nome         Date         Material           Designed By         Approved By         Moss 223 kg           Designer         Date         Dimensions





## **3 SOLID**WORKS

## Drawing Modes – Detailing

- Detailing –tilaan avatulle piirustukselle voi tehdä monia operaatioita olettaen, että se on avattu Open valinnalla
- Resolve Drawing –toiminnolla saat muutettua piirustuksen täysin ratkaistuun tilaan ja saat kaikki toiminnot käyttöön

Welcome - SOLIDWORKS	SOLIDWORKS ×	
Home <b>Recent</b> Learn Alerts	Detailing	Resolve
Documents     Folders       Quick filter:     Image: Constraint of the second	Open Drawings quickly for dimensioning and annotation, regardless of the number of sheets and model views. Available capabilities include:	
02800.SLDDRW	A dd annotations such as notes, balloons, and many others	
Show in Folder	Create detail, break, and crop views	
Mode: Detailing ~ Configuration: ~	Print and Save to PDF	
References	Create sketch entities	
Г <u>г</u>	Add, edit, and format dimensions	
	Don't show again Help OK	



### taen, että se on avattu **Open** valinnalla zuun tilaan ja saat kaikki toiminnot käyttöön





### Lisävinkkejä – Design Tree

- Tehokkain tapa etsiä hierarkiasta esim. tiedostonimellä/numerolla on kirjoittaa hakutieto Filter –kohtaan
- Toinen on Go To –toiminto, jolla voit hakea aina seuraavan hakutiedot täyttävän objektin





### rolla on kirjoittaa hakutieto **Filter** –kohtaan kutiedot täyttävän objektin

🍳 🗉 🖹 🕅 🖉	
🖓 - 🛛 🔎 🔶 - 🚽	
(Default)	
History 🕅 Invert Select	ion
🐼 Sensors <u>G</u> o To	
Annotat Top Assembly (02	2800)
Front Pl. Hidden Tree	Items
	;;
Concentric1356519000 (	
O Concentric1356518804 (C	Find In FeatureManager Design Tree X
Oncentric1356518805 (C	Find what:
🔨 Coincident1229165360 (C	ProfileCenter
Oconcentric1356518865 (C	Cancel
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🔨 Coincident1229165455 (C	
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Oconcentric1356518993 (C	
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Oconcentric1356518998 (C	
ProfileCenter11 (LOOP CL	
ProfileCenter14 (LOOP CL	
ProfileCenter15 (LOOP CL	Z w
ProfileCenter16 (LOOP CL	X



### Lisävinkkejä – Lock Rotation

Kaikkien Concentric –ehtojen vapaa kierto kannattaa lukita jos se vaan tilanteeseen sopii, koska vapausasteet vievät laskentatehoa koneelta!







### Lisävinkkejä – Drawing Performance

**System Options**  $\rightarrow$  **Drawings**  $\rightarrow$  **Performance** –kohdassa voit vaikuttaa esim. kuvantojen kevennykseen liikuteltaessa sekä niiden automaattiratkaisun asetuksiin.

System Options - Performance		×
System Options Document Propert	ies	रिंग्ने Search Options Q
General MBD Drawings Display Style Area Hatch/Fill Performance Colors Sketch Relations/Snaps Display Selection Performance Assemblies External References	<ul> <li>Show contents while dragging drawing view</li> <li>Allow auto-update when opening drawings</li> <li>Save tessellated data for drawings with shaded and draft</li> <li>Turn off Automatic Solve Mode and Undo and turn on N drawing view contains more than this number of sketch</li> <li>Include Detailing Mode Data when saving</li> </ul>	ft quality views No Solve Move when entities:
	OK	Cancel Help





### Lisävinkkejä - Treehouse

- Tällä sovelluksella voit luoda isoja rakenteita Top-Down –tyylisesti tai muokata jotain olemassa olevaa ullet
- Haluttu Template näkymä (1), osien kopiointi (2), Property tietojen katselu (3), uuden rakenteen julkaisu SW tiedostoiksi (4) sekä paljon muuta







## Lisävinkkejä - Mallien sijainti

- PDM joko SW 3DX-pilvi tai perinteinen SQL-pohjainen palvelin, parhaat vaihtoehdot useamman suunnittelijan ympäristöön (dokumenttien käsittely lokaalisti = nopea)
- Pilvi Dropbox, OneDrive jne., hyviä vaihtoehtoja yhden suunnittelijan tarpeisiin
- Verkkolevy yleensä varmistettu mutta riippuen yhteyksistä voi olla todella hidas käyttää
- Lokaali (oma levy) nopea käyttää mutta riskialtis jos varmuuskopiointi ei ole riittävällä tasolla, muilla ei pääsyä





### Mitä kevennystekniikoita voisit hyödyntää?





## AIPWorks etäkoulutus

### aipworks.fi/koulutus/

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