

SOLIDWORKS® 2016

SOLIDWORKS Electrical: 3D

Dassault Systèmes SOLIDWORKS Corporation
175 Wyman Street
Waltham, MA 02451 U.S.A.

© 1995-2015, Dassault Systemes SolidWorks Corporation, a Dassault Systèmes SE company, 175 Wyman Street, Waltham, Mass. 02451 USA. All Rights Reserved.

The information and the software discussed in this document are subject to change without notice and are not commitments by Dassault Systemes SolidWorks Corporation (DS SolidWorks).

No material may be reproduced or transmitted in any form or by any means, electronically or manually, for any purpose without the express written permission of DS SolidWorks.

The software discussed in this document is furnished under a license and may be used or copied only in accordance with the terms of the license. All warranties given by DS SolidWorks as to the software and documentation are set forth in the license agreement, and nothing stated in, or implied by, this document or its contents shall be considered or deemed a modification or amendment of any terms, including warranties, in the license agreement.

Patent Notices

SOLIDWORKS® 3D mechanical CAD and/or Simulation software is protected by U.S. Patents 5,815,154; 6,219,049; 6,219,055; 6,611,725; 6,844,877; 6,898,560; 6,906,712; 7,079,990; 7,477,262; 7,558,705; 7,571,079; 7,590,497; 7,643,027; 7,672,822; 7,688,318; 7,694,238; 7,853,940; 8,305,376; 8,581,902; 8,817,028; 8,910,078; 9,129,083; 9,153,072 and foreign patents, (e.g., EP 1,116,190 B1 and JP 3,517,643).

eDrawings® software is protected by U.S. Patent 7,184,044; U.S. Patent 7,502,027; and Canadian Patent 2,318,706.

U.S. and foreign patents pending.

Trademarks and Product Names for SOLIDWORKS Products and Services

SOLIDWORKS, 3D ContentCentral, 3D PartStream.NET, eDrawings, and the eDrawings logo are registered trademarks and FeatureManager is a jointly owned registered trademark of DS SolidWorks.

CircuitWorks, FloXpress, PhotoView 360, and TolAnalyst are trademarks of DS SolidWorks.

FeatureWorks is a registered trademark of Geometric Ltd.

SOLIDWORKS 2016, SOLIDWORKS Standard, SOLIDWORKS Professional, SOLIDWORKS Premium, SOLIDWORKS PDM Professional, SOLIDWORKS PDM Standard, SOLIDWORKS Workgroup PDM, SOLIDWORKS Simulation, SOLIDWORKS Flow Simulation, eDrawings, eDrawings Professional, SOLIDWORKS Sustainability, SOLIDWORKS Plastics, SOLIDWORKS Electrical, SOLIDWORKS Composer, and SOLIDWORKS MBD are product names of DS SolidWorks.

Other brand or product names are trademarks or registered trademarks of their respective holders.

COMMERCIAL COMPUTER SOFTWARE - PROPRIETARY

The Software is a "commercial item" as that term is defined at 48 C.F.R. 2.101 (OCT 1995), consisting of "commercial computer software" and "commercial software documentation" as such terms are used in 48 C.F.R. 12.212 (SEPT 1995) and is provided to the U.S. Government (a) for acquisition by or on behalf of civilian agencies, consistent with the policy set forth in 48 C.F.R. 12.212; or (b) for acquisition by or on behalf of units of the Department of Defense, consistent with the policies set forth in 48 C.F.R. 227.7202-1 (JUN 1995) and 227.7202-4 (JUN 1995).

In the event that you receive a request from any agency of the U.S. Government to provide Software with rights beyond those set forth above, you will notify DS SolidWorks of the scope of the request and DS SolidWorks will have five (5) business days to, in its sole discretion, accept or reject such request. Contractor/Manufacturer: Dassault Systemes SolidWorks Corporation, 175 Wyman Street, Waltham, Massachusetts 02451 USA.

Copyright Notices for SOLIDWORKS Standard, Premium, Professional, and Education Products

Portions of this software © 1986-2015 Siemens Product Lifecycle Management Software Inc. All rights reserved.

This work contains the following software owned by Siemens Industry Software Limited:

D-Cubed™ 2D DCM © 2015. Siemens Industry Software Limited. All Rights Reserved.

D-Cubed™ 3D DCM © 2015. Siemens Industry Software Limited. All Rights Reserved.

D-Cubed™ PGM © 2015. Siemens Industry Software Limited. All Rights Reserved.

D-Cubed™ CDM © 2015. Siemens Industry Software Limited. All Rights Reserved.

D-Cubed™ AEM © 2015. Siemens Industry Software Limited. All Rights Reserved.

Portions of this software © 1998-2015 Geometric Ltd.

Portions of this software incorporate PhysX™ by NVIDIA 2006-2010.

Portions of this software © 2001-2015 Luxology, LLC. All rights reserved, patents pending.

Portions of this software © 2007-2015 DriveWorks Ltd.

Copyright 1984-2010 Adobe Systems Inc. and its licensors. All rights reserved. Protected by U.S. Patents 5,929,866; 5,943,063; 6,289,364; 6,563,502; 6,639,593; 6,754,382; Patents Pending.

Adobe, the Adobe logo, Acrobat, the Adobe PDF logo, Distiller and Reader are registered trademarks or trademarks of Adobe Systems Inc. in the U.S. and other countries.

For more DS SolidWorks copyright information, see Help > About SOLIDWORKS.

Copyright Notices for SOLIDWORKS Simulation Products

Portions of this software © 2008 Solversoft Corporation.

PCGLSS © 1992-2014 Computational Applications and System Integration, Inc. All rights reserved.

Copyright Notices for SOLIDWORKS Standard Product

© 2011, Microsoft Corporation. All rights reserved.

Copyright Notices for SOLIDWORKS PDM Professional Product

Outside In® Viewer Technology, © 1992-2012 Oracle

© 2011, Microsoft Corporation. All rights reserved.

Copyright Notices for eDrawings Products

Portions of this software © 2000-2014 Tech Soft 3D.

Portions of this software © 1995-1998 Jean-Loup Gailly and Mark Adler.

Portions of this software © 1998-2001 3Dconnexion.

Portions of this software © 1998-2014 Open Design Alliance. All rights reserved.

Portions of this software © 1995-2012 Spatial Corporation.

The eDrawings® for Windows® software is based in part on the work of the Independent JPEG Group.

Portions of eDrawings® for iPad® copyright © 1996-1999 Silicon Graphics Systems, Inc.

Portions of eDrawings® for iPad® copyright © 2003 - 2005 Apple Computer Inc.

Contents

Introduction

About This Course	2
Prerequisites	2
Course Design Philosophy	2
Using this Book	2
About the Training Files	3
Windows® 7	3
Conventions Used in this Book	4
Use of Color	4
Graphics and Graphics Cards	4
Color Schemes	5
More SOLIDWORKS Training Resources	5
Local User Groups	5

Lesson 1: Assembly Creation

What are Assemblies?	8
Stages in the Process	8
Unarchiving a Project	10
Opening an Existing Project in SOLIDWORKS	10
The Electrical Project Documents	11
SOLIDWORKS Cabinet Layout	12
Opening a SOLIDWORKS File from the Browser	12
Exercise 1: Assembly Creation	17

**Lesson 2:
Cabinets, Ducts, Rails**

Cabinets, Ducts, Rails	20
Adding a Cabinet	20
Stages in the Process	20
Inserting Components	22
Naming	22
Inserting Rails	23
Mate References	23
Change Rail or Duct Length	25
Inserting Ducts	25
Mates	27
Exercise 2: Cabinets	29

**Lesson 3:
Component Intelligence**

What is a component?	32
Component Intelligence	32
The Electrical Component Wizard	33
Stages in the Process	33
Define Faces	34
Create Mate Reference	36
Create Connection Points	37
Creating Cable Connection Points	42
Exercise 3: Component Intelligence	44

**Lesson 4:
Insert Components**

Insert Components	48
Stages in the Process	48
Align Components	51
Inserting Terminals	53
Exercise 4: Insert Components	54

**Lesson 5:
Routing Wires**

Routing Wires	58
Stages in the Process	58
Routing Path	61
Sketch Name	61
Route Wires	63
3DSketch Route	63
Routing Parameters	64
Wire Sketches	65
SOLIDWORKS Route	66
Wire Segregation	67
Exercise 5: Routing Wires	70

**Lesson 6:
Routing Cables**

Routing Cables	74
Stages in the Process.....	74
Creating Cable Connection Points	75
Route Cables.....	77
Set Origin Destination of Cables by Location	78
Exercise 6: Routing Cables.....	81

**Lesson 7:
3D Error Analysis**

Design Rule Checks	84
Stages in the Process.....	84
Manufacturer Part Not Inserted	86
Manufacturer Part Inserted Twice.....	87
Missing Connection Point.....	88
Incorrect CPoint Route Type	89
No Valid Path	90
Wrong Wire Properties	92
Exercise 7: 3D Error Analysis	93
False positives.....	94