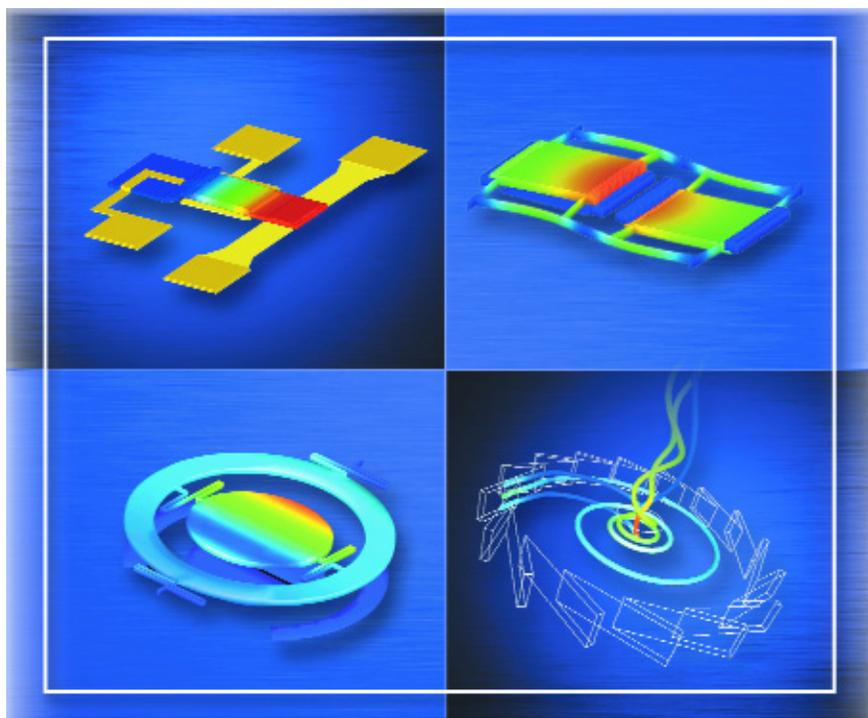


CoventorWare® 10.0

Installation Instructions

Windows and Linux Operating Systems



Coventor, Inc.

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Doc Ver 10.000 Rev A Compatible with CoventorWare version 10.0

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Notes

Section 1: Introduction

This document contains the instructions for installing CoventorWare 10.0. Section 2 documents the installation requirements and procedures for Microsoft Windows 7 and 8 operating systems. Section 3 documents the installation requirements and procedures for Red Hat Enterprise Linux 5 and 6 operating systems. Each of these sections includes a pre-installation list that should be read carefully before the user begins installation.

1.1: Document Conventions

This section briefly outlines the conventions used in this document.

Icons

Additional information or information of special note is denoted by an icon:



The stop sign highlights critical information or instructions that the user must have in order to obtain proper results.



The green arrow highlights information or instructions needed to understand the immediate topic.



The light bulb highlights supplemental information concerning the section topic or directs the user to other sections with related topics.

Drive Designations

For Windows users, the disk where CoventorWare10.0 is installed will be called **D:**

The user needs to adjust the drive letters applicable to his/her system.

Notes

Section 2: Installation Instructions for Windows

2.1: Introduction

This document provides detailed instructions for the installation of CoventorWare 10.0 on a PC running Microsoft Windows 7 and 8.1 in 64-bit. The installation has all the necessary files, but access to the individual programs are controlled by license features.

Note that the license service is a separate product. If you will be installing the license service, you need to download that installation kit at <http://www.coventor.com/support/portal/current-releases>, and follow the instructions in the *Coventor Licensing Installation Guide*, starting on [page 2-1](#).

2.2: Pre-Installation Requirements

2.2.1: Operating System and Third-Party Software

The following operating systems are supported in this release of CoventorWare 10.0:

- Windows 7 Pro 64-bit
- Windows 8.1 64-bit



It is strongly recommended that the machines are up-to-date with the latest security updates for their OS and Service Pack from Microsoft.

CoventorWare 10.0 is compatible with the following:

- UGS I-deas 10, and 11
- Abaqus 6.9-EF4
- Tecplot 360 2009

2.2.2: System Configuration

Before installing CoventorWare 10.0, make sure that your machine meets the following criteria:

- TCP/IP networking must be installed on your system in order for CoventorWare 10.0 to work.
- The drive(s) where CoventorWare 10.0 is to reside must have the NTFS file system.
- The computer where the software is to be installed must have a C:\ drive (requirement for FLEXnet Publisher license server), and Windows must be installed on the C:\ drive.
- Adobe Acrobat Reader has to be installed on your machine. The Reader is not necessary for the software to run, but the on-line help accessed from the Console and from the individual setup windows utilizes this program. Adobe Acrobat Reader X and later are supported in CoventorWare 10.0; it can be downloaded from the Adobe Web site: <http://www.adobe.com/products/acrobat/readstep2.html>

2.2.3: Hardware Requirements

The minimum computer components needed to run the complete CoventorWare software suite are listed below.

- Intel Pentium 4 or higher or an AMD equivalent.
 - minimum 1.6 GHz, faster is recommended
 - minimum 512 KB L2 cache, more is recommended

- Dual CPUs or dual core CPUs are recommended because they allow use of the machine for other tasks while CoventorWare field solvers are running. Selected field solvers make use of dual CPUs/cores.
- 2 GB RAM (4 GB or more is recommended for 64-bit systems)
- Adjust the memory settings (paging file size) for optimal use:
 1. Select *Start > Computer*.
 2. Click on *System Properties* in the top task bar.
 3. Click on *Advanced system settings* in the left pane.
 4. From the *Advanced* tab, click **Settings** in the Performance pane.
 5. In the Performance Options dialog, click on **Advanced**.
 6. Click on **Change**, then unselect *Automatically manage paging file size for all drives*. Select *Custom size*, and enter the desired value.
 7. Click on **OK** in all open dialogs.
- Graphics card requirements:
 - Support for OpenGL version 1.2 or higher
 - Support for DirectX 9
 - Discrete (as opposed to integrated) graphics with a minimum 64 MB dedicated memory; more is recommended
 - NVIDIA chip sets are recommended. ATI chip sets may be acceptable.
 - Up-to-date driver software
 - At least one bit of alpha buffer (available on most newer cards)
- Color monitor set to display at least 24-bit color; 32-bit or higher is preferred.
- A minimum of 1.32 GB free disk space for installation for the software installation.
 - CoventorWare must be installed in a location with no spaces in the path name; e.g., do not install CoventorWare in C:\Program Files.
 - Coventor recommends that the hard disk be partitioned such that there is a disk to install programs (other than system disk C:\) and a larger disk for users to store their models and simulations results.
- Minimum 5 GB free disk space for running the software. CoventorWare project directories can take up several GB of space. So the bigger the disk drive the better.



For the most up-to-date system requirements, please go to <http://www.coventor.com/mems/support/sysreq.html>.

Graphics Cards

As mentioned above, CoventorWare requires a graphics card using OpenGL extension. The Preprocessor and the Visualizer components of CoventorWare are sensitive to the type of graphics card you have installed on your system. If you do not have one of the graphics cards listed above, go to the Web site listed below to see if your graphics card is supported.

The Preprocessor is based on the HOOPS graphics subsystem, so the recommended graphics cards are listed on the HOOPS Web site at <http://developer.techsoft3d.com/hoops/hoops-visualize/graphics-cards>.

The Visualizer is based on Tecplot 360 by Tecplot, Inc. Tecplot, Inc. requires a minimum resolution of 1024 x 768 and an OpenGL accelerated graphics card.

2.2.4: Installation Files

Download the *CoventorWare 10.0 for Windows* installation kit from

<http://www.coventor.com/support/portal/current-releases>.

Note that you will have to have a user name and password to access the download area.

The license service is a separate installation kit, which you only need if you are going to install the license service.

2.3: Licenses

CoventorWare 10.0 uses Flexera Software licensing. This means that to run CoventorWare,

- a license daemon needs to be running on a host available on the network to the CoventorWare process,
- a valid license file, which is specific to the license server host, must be installed on the license server, and
- CoventorWare must be configured to point to the license server so it can check out a CoventorWare license.

The Coventor Licensing Service is installed separately from CoventorWare. Coventor provides two types of licenses:

- **Nodelocked:** Allows a user to run CoventorWare only on the same machine where the license is installed and the license server is running.
- **Floating:** Allows a user to run the software on any machine on the same network with the license server.

If you are running off of a floating license, you do not have to obtain and install an individual license for your machine; you need only configure CoventorWare to point to the license server; see [page 2-4](#) for details. If you are going to have the Coventor Licensing Service on the same machine that you are running CoventorWare, you need to download and install the Coventor Licensing product; for more information, see the instructions in the *Coventor Licensing Installation Guide* starting on [page 2-1](#).

2.4: Installing the CoventorWare Software

This section details how to install the CoventorWare product. It is installed by clicking on the *CoventorWare_10.000_GOLD_setup.exe* in the downloaded directory or on the CD.

2.4.1: For Users of CoventorWare 2010 or Earlier

If you have a version of CoventorWare 2010 or earlier, before you begin the installation procedure, you must stop any license services that may be running. To shut down any CoventorWare services,

1. Select *Start > All Programs > Coventor > CoventorWare 2010 > License Manager*.
2. In the LMTOOLS window, click on the *Start/Stop/Reread* tab.
3. Click on any CoventorWare License Services in the list, and then click on **Stop**.

You do not have to uninstall any previous version of CoventorWare, but you cannot have a license service from that version running because it will conflict with the license service used for CoventorWare 10.0. You must request a 10.0 license, and once installed, it will be sufficient for both versions.

The Coventor license service is downloaded and installed separately. Please see the following link for more details: <http://www.coventor.com/mems/download.html>.

2.4.2: Installing CoventorWare

The installation of CoventorWare is a straightforward, step-by-step process:

1. After you have downloaded the installation from the Coventor Web site, navigate to the *CoventorWare_10.000_GOLD_setup.exe* and double click on it to start the installation.
2. Wait for the install files to decompress.
3. In the Introduction window, click on **Next**.

4. In the License Agreement window, read the License Grant information, then select *I accept the terms of License Agreement*, and click on **Next**.
5. Specify an installation directory. The Destination Folder window includes an option to select another direction other than the default directory. This default directory is `X:\Coventor\CoventorWare10`, where X:\ is the drive with the maximum available free space. We will refer to this installation drive as D:\ in the rest of this document.

To change the default directory, click on **Choose**, and navigate to the desired drive and directory. Make sure that directory has enough space available to write the swap and temporary files required by some programs. We recommend that you keep the `Coventor\CoventorWare10` path because this will make it easier for technical support to help you if the need arises.

Click on **Next**.



No spaces are allowed in the path names to the CoventorWare installation directory.

6. In the following window, click on **Install** to start copying files to the appropriate directories. A status monitor will display the installation progress.
7. When the installation is done, click on **Done**.

2.5: Running the Software

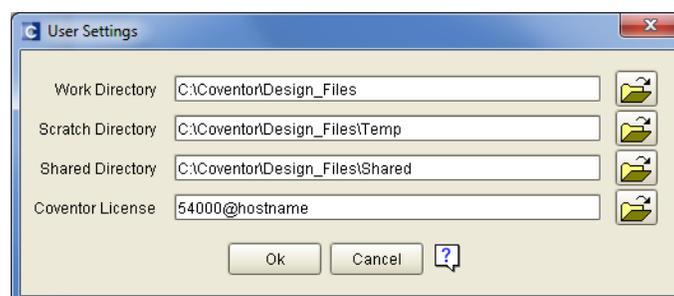
Each user will have a work directory that will be configured the first time they run the software.

1. Start the software by going to *Start > Programs > Coventor > CoventorWare 10.0*. Along with the Console and projects dialogs, the User Settings dialog appears.
2. Use the *Browse* folder icon to choose location of the work directory for your projects. You need a large directory because all project information will be stored in this location. The default directory should be located on a large disk. Use the *Browse* icon to navigate to the desired root directory and then specify your work directory (*Design_Files* directory in our example.) Press Enter and the Scratch and Shared Directory fields will be filled automatically.



Spaces in file paths or directories are not allowed.

3. You can use the *Browse* folder icon to specify a scratch and shared directory location other than the one designated for the work directory, if you wish.
4. Set the Coventor license to `54000@hostname`, where *hostname* is the name of the computer where the license is installed. An example of a completed User Settings window is shown below:





If you have a nodelocked license, the *hostname* value would be the name of your machine. If you have a server license, your *hostname* value would be the name of the machine where the server license resides. Put the name of that machine after the @ symbol. Do not enter “hostname”.



If the user does not specify a *portnumber@hostname* value for the Coventor License, CoventorWare will automatically attempt to set it at 54000@hostname. If the license checkout fails, it will return an error.



The number 54000 is the default port number specified in the license files and may be changed by your system administrator if it conflicts with another port number. This port number must be consistent with the number in the license file (i.e. the license file must be updated).

If your company has a license service installed on more than one machine, you can specify multiple servers with this format:

portnumber1@hostname1, portnumber2@hostname2, portnumber3@hostname3

5. Click on **OK**. The Console and Projects dialog box become active. For more instruction on how these and other CoventorWare dialogs function, see [“Basic MEMS Device Analysis” on page T2-1](#) in *MEMS Design and Analysis Tutorials*.

The User Settings window only needs to be set the first time the software is run. It will not appear in subsequent start-ups of the software. If you want to check your user settings, or if you would like to change them, access the User Settings window from the Console’s *User Settings* icon.



Do not attempt to run CoventorWare 10.0 as the reserved (built-in) Administrator. You can run CoventorWare 10.0 as a user with administrative privileges, but do not run it as the reserved Administrator.

2.5.1: CoventorWare 10.0 Project Structure

CoventorWare 10.0 projects have a different structure than CoventorWare 2012 and earlier releases: the Schematics directory is no longer necessary and will not be created when a tutorial project is imported or a new project has been created. When you open a project created from a previous version of CoventorWare, it will be updated to the 10.0 format, but the Schematics directory will not be removed.

Note that if you try to access a 10.0 project in an earlier version of CoventorWare, the project will not appear in the Projects list because it does not have the Schematics directory.

2.6: Uninstalling CoventorWare

To remove the software:

1. Go to *Start > Control Panel > Programs > Uninstall a program*
2. Select CoventorWare 10 and click on *Uninstall/Change*. This will uninstall the software.

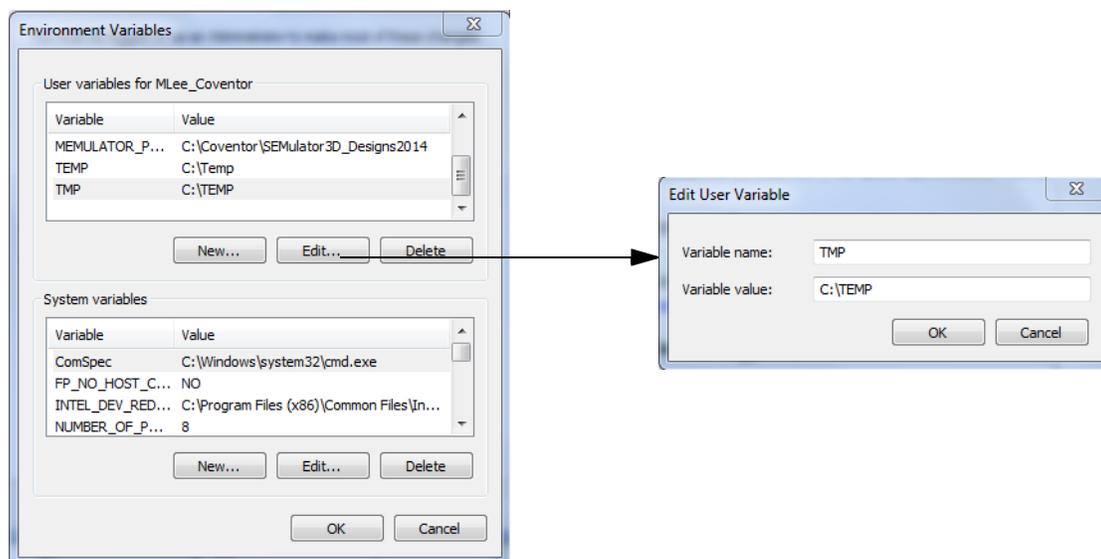
Note that the uninstall program will only delete files that were installed automatically. If there are any files you copied into the installation directories, then these directories will not be removed. A user with administrative privileges must remove them manually.

2.7: Defining or Changing Variables in Windows

Each user will need to change the default user TEMP and TMP variables. These variables should point to a directory with no spaces or tildes in the name, and the user should have full control permissions (write, *etc.*) on these directories. These directories, as well as installation itself, should be on an NTFS drive.

1. From the Start menu, right click on *Computer* and select *Properties*. From the Control Pane Home pane, select *Advanced system settings*.
2. When the System Properties window appears, click on the *Advanced* tab, then on **Environment Variables**. This will bring up a window similar to the one shown in [Figure 2-1](#).

Figure 2-1 Sample Variable Setting



3. In the Environment Variables window, highlight the TEMP user variable (in the User Variables for *User-name* pane) and click on **Edit**.
4. In the dialog box that opens, set the TEMP variable to an existing folder that does not have spaces and to which you have write permission. The graphic above shows the suggested definition.
5. Click on **OK**. The newly defined variable appears in the User Variables window.
6. Use the same procedure to change the TMP variable.
7. Click on **OK** to close the Environment Variables window.

To confirm that you can write to the *Temp* folder specified, use Windows Explorer to navigate to the folder. Right click in the folder and select *New > Text Document*. If you do not have write permission to this folder, Windows will not give you this option. You may also want to reopen the Environment Variables window and check that the correct variables are displayed.



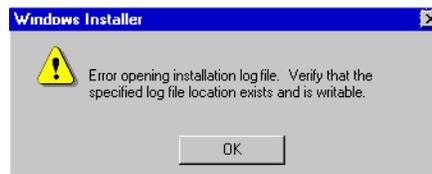
Changes to the user variables only affect the user who is logged on the machine. System variables affect all users and can only be changed by a system administrator.

2.8: Troubleshooting

This section outlines some potential problems and their solutions. This documentation is by no means comprehensive. If you do not find the necessary information in this documentation, please contact your support applications engineer.

2.8.1: Error Running Setup File

If you get the error shown in the graphic below when you run the *setup.exe*, add the TEMP variable with its value pointing to your temp directory (*C:\Temp*, in most cases), as a system variable, even if such a variable exists as a user variable. For more details on setting environment variables, see [page 2-6](#).



2.8.2: Setup Fails Because of Firewall Problems

CoventorWare setup may fail if you are running personal firewall software and did not configure it to allow CoventorWare database processes to communicate (ODBCutil, fbserver, etc.). Before installing CoventorWare, you should disable personal firewalls or else permit CoventorWare processes to open network connections.

2.8.3: CoventorWare Will Not Start

TEMP Variable Defined with Spaces

Make sure your TEMP and TMP variables do not have any spaces in their definitions. See [page 2-6](#) for more information on setting these variables.

Tilde in TEMP Variable Definition

If the TEMP variable contains a tilde (~) in the file path, CoventorWare will fail to start. This tilde appears in the file path because the Windows 8.3 file path notation convention dictates that folder names that are longer than eight characters are shortened by inserting a tilde.

To fix this issue, users have two options:

- Reset the TEMP and TMP variables to a simple filepath such as C:\TEMP.
- Disable the Windows 8.3 file path notation convention as described here: <http://support2.microsoft.com/kb/121007>

Licensing Issues

To troubleshoot licensing errors that prevent CoventorWare from starting, see the *Coventor Licensing Installation* documentation.

2.8.4: CoventorWare Starts, then Closes

Corrupted rc File

If the CoventorWare splash screen appears, but the software fails to start, the `.rc` file may be corrupted. Delete this file and restart the software.

For CoventorWare 2012, 2014, and 10, this file is located in `C:\Users\%user%\AppData\Roaming\Coventor`. For CoventorWare 2010, this file is located in `C:\Users\%username%\`.

Licensing Error

If you start CoventorWare and get a licensing error that immediately shuts down the software, it may be because during the installation you changed the license server from that used in previous installations. To fix this problem, delete the user's `.coventorware10rc` file, located in `C:\Users\%username%\AppData\Roaming\Coventor`. In this case, you will be prompted for new settings when CoventorWare is restarted.

Temp Variable Issue

If you start CoventorWare and the splash screen pops up and then disappears after a few seconds, the Temp environment variable may be defined incorrectly. Make sure you do not have any forward slashes in the variable value. For example, if your Temp variable is set to `C:/Temp`, change it to `C:\Temp`. For information on how to change an environment variable, see [page 2-6](#).

Font Issues

If the CoventorWare 10.0 GUI comes up and disappears with the following error in the `CoventorWare.log` file:

```
Assertion failed: offset < fileSize, file
../../../../src/share/native/sun/awt/font/fontmanager/fontobjects/fontObject.c
```

check your Windows fonts (typically `C:\Windows\Fonts`) folder for corrupt font files or invalid files. The only files that are allowed in that folder are font files, so if there are any shortcuts in that file, they need to be removed. Some font files may also be corrupted. However, these corrupt font files will not show up in Windows Explorer. You can compare the font files displayed in Windows Explorer with a directory listing obtained by starting a DOS shell, and doing a `dir` in the Fonts folder. Look for files with extensions other than `.FON` or `.TTF` extension. Files with lowercase `.tff` extension may be bad font files.

2.8.5: CoventorWare Appears to Hang on Launch

If CoventorWare appears to hang for several minutes after launching the software, it may be that the software is trying to check for updates and cannot complete the update check. If this is a regular occurrence, users can do one of the following:

- Create the `COV_DISABLE_UPDATE_CHECK` environment variable, and set its value to `True`. This environment variable suppresses updates for **ALL** Coventor FLEXlm products.
 - or
 - Edit the file `C:\ProgramData\FLEXnet\Connect\Database\{PRODUCT_ID}.ini` and set `ScheduleInterval=0`. The product IDs for CoventorWare 10, CoventorWare 2014, and CoventorWare 2012 are given below:
- | | |
|--------------------|--|
| CoventorWare 10: | {796c2b20-1f1a-11b2-9d5c-be3810ce477f} |
| CoventorWare 2014: | {9881848c-1f13-11b2-9fa0-b55bbfa4a097} |
| CoventorWare 2012: | {ea382508-1f01-11b2-877d-e02777dd81a8} |

2.8.6: CoventorWare Cannot Access Licenses

If your computer is configured to obtain an IP address from a DHCP server and the computer is disconnected from the network, the License Server may not be able to checkout CoventorWare licensed features. The product or its parts will be unlicensed. The solution is to disable the Media Sensing feature, as described in the Microsoft Web site <http://support.microsoft.com/support/kb/articles/Q239/9/24.ASP>

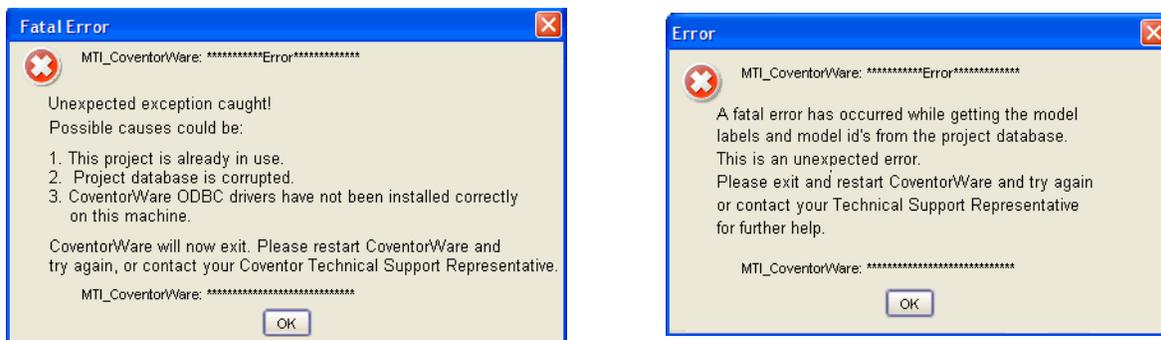
If you have two Ethernet cards on your computer and use a DHCP server, make sure that you are connected to the network through the Ethernet card that is quoted in your license file(s). If you want to disconnect your computer from the network, then disable the Media Sensing feature. Before disabling the Media Sensing feature, carefully consider that this feature was introduced in Windows specifically to handle more than one network enabling hardware.

2.8.7: CoventorWare Cannot Check Out a Floating License

If you are running from a floating license, and you cannot get a license for CoventorWare or for a particular solver, it may be that all the license seats have been checked out by other users. To find out how many seats are available and which users have checked them out, select *Start > All Programs > Coventor > CoventorWare 10 > License Status*. The license status will be reported in a Command window.

2.8.8: Database Error

If CoventorWare starts, then displays a database error like the ones seen below, the ODBC components (drivers, etc.) may not be installed or running properly.



To check the status of the ODBC components, use the Command Prompt to cd to the *Coventor\CoventorWare10\bin\NT40_x64* directory. Enter the following command at the command line:

```
ODBCutil.exe --test
```

If the test completes without error, the ODBC components are functioning properly. If the test reports an error, re-install the ODBC components, as detailed in [Section 2.8.10](#).

2.8.9: ODBC on a Network

If CoventorWare is installed on an application server, the ODBC components need to be installed separately on each workstation accessing that installation. To do this, run the ODBCutil.exe utility with administrator access on each workstation accessing the networked installation. After installation, the setup can be tested using the `--test` option of the utility.

2.8.10: Re-installing ODBC

To re-install the ODBC drivers, simply run:

```
ODBCutil.exe --install
```

This will clear out any earlier installations and re-install the ODBC drivers. Then it will perform some tests to assert that the ODBC sub-system is operational.



Note that you must have administrative privileges to install the drivers.

2.8.11: Acrobat Will Not Open or Opens Slowly

If you click on a Help button in the CoventorWare interface or select a pdf from the Help menu, and the Acrobat Reader does not open, test file associations to Acrobat by clicking on a pdf file in Explorer or simply by typing the file name in a DOS command shell. If the file association does not work, you may need to append your Path system variable. (For instructions on how to access variables, see [page 2-6](#)). Access the Path system variable, and append the Value field with the Adobe Acrobat directory location. (Note that appending the Path variable can only be done by a user with administrative privileges).

If Acrobat Reader opens very slowly, it may be that you are running an unsupported version. CoventorWare 10.0 online help only works with Reader X or higher.

2.8.12: Borrowing Licenses

Users who run CoventorWare from a network license will not be able to run CoventorWare if their computer or laptop is disconnected from the network unless they borrow the necessary license features. To run CoventorWare in a borrowed state, prior to disconnecting from the network, the user must checkout or borrow each and every feature he/she would expect to run while disconnected. The steps for borrowing license features are outlined below:

1. Set the following environment variable: `MTI_SPECIAL = licenseBorrow`. For details on how to set an environment variable, see [page 2-6](#).
2. Go to *Start > Coventor > Coventor Licensing 1.0 > License Manager*.
3. In the Service/License File tab, select *Configuration Using License File*, then make sure the port@host is displayed in the field below.
4. Click on the *Borrowing* tab, and fill out the necessary details. All the information must be filled in before running CoventorWare.
5. Close the License Manager.
6. Start CoventorWare.
7. Check out each feature that will be needed when the computer is disconnected: to check out a solver or feature (Preprocessor, Visualizer, etc.), you must run it. When you turn borrowing on (as described in the previous step), and then run a feature or solver, you effectively check it out for the prescribed time period. Now when the machine is disconnected, the features will be available.

Section 3: Installation Instructions for Linux

3.1: Introduction

This document provides detailed instructions for the installation of CoventorWare 10.0 on a Red Hat Enterprise Linux WorkStation 5 and 6 in 64-bit. A good understanding of Linux is assumed. The installation has all the necessary files for CoventorWare 10.0, but access to the individual modules are controlled by license features.

Note that the license service is a separate product. If you will be installing the license service, you need to download that installation kit at <http://www.coventor.com/support/portal/current-releases>, and follow the instructions in the *Coventor Licensing Installation Guide*.

3.2: Pre-installation Requirements

This section lists the software, hardware, and disk space requirements that are needed before CoventorWare is run.

3.2.1: OS Support and Third-Party Software

The following Red Hat Enterprise Linux operating systems are supported in this release of CoventorWare 10.0.

- Desktop 5 64-bit
- Desktop 6, 64 bit

CoventorWare 10.0 is compatible with the following:

- UGS I-deas 10, and 11
- Abaqus 6.9-EF4
- Tecplot 360 2011
- Adobe Acrobat Reader 9.5

Adobe Acrobat Reader is not required for the software to run, but it is needed for online help accessed from the software dialogs. CoventorWare 10.0 only supports Adobe Acrobat Reader 9.5; the online help features may not work properly in other PDF readers or in other versions of Acrobat Reader. During the software installation CoventorWare automatically installs Acrobat Reader 9.5.

3.2.2: Hardware Requirements

The minimum computer components needed to run CoventorWare are as follows:

- Intel Pentium 4 or higher or an AMD equivalent. Multiple CPUs or multi-core CPUs are recommended because they allow use of the machine for other tasks while CoventorWare field solvers are running. Selected field solvers make use of multiple CPUs/cores.
- 2 GB RAM (4 GB or more is desirable to run simulations that require more memory)
- Hardware Accelerated 3D graphics using OpenGL Version 1.2 or higher:
 - Graphics cards based on NVIDIA GeForce, NVIDIA Quadro, and 3Dlabs Permedia2 (Diamond Fire GL card) chip sets are supported
 - Support for DirectX 9
 - Graphics cards drivers must correspond to the OS and be up-to-date.
 - Minimum 64 MB dedicated memory; more is recommended
- A minimum of 4.1 GB free disk space for installation for the software installation

- Minimum 5 GB free disk space for running the software. CoventorWare project directories can take up several GB of space. So the bigger the disk drive the better.

Graphics Cards

As mentioned above, CoventorWare requires a graphics card using OpenGL extension. The Preprocessor and the Visualizer components of CoventorWare are sensitive to the type of graphics card you have installed on your system. If you do not have one of the graphics cards listed above, go to the Web site listed below to see if your graphics card is supported.

The Preprocessor is based on the HOOPS graphics subsystem, so the recommended graphics cards are listed on the HOOPS Web site at <http://developer.techsoft3d.com/hoops/hoops-visualize/graphics-cards>.



ATI graphics drivers do not support hardware acceleration with Linux Red Hat 5 operating system. In this case the graphics system resorts to a lesser quality software driver. This software driver may cause the 3-D display of Preprocessor to become black. To avoid this problem, users need to turn off OpenGL rendering by setting the COV_NO_OPENGL environment variable to true before starting CoventorWare. This fixes the rendering problem in exchange of slower view manipulations.

The Visualizer is based on Tecplot by Tecplot, Inc. It requires a minimum resolution of 1024 x 768 and an accelerated graphics card.

3.2.3: Installation Files

Download the *CoventorWare 10.0 for Red Hat Enterprise Linux* installation kit from <http://www.coventor.com/support/portal/current-releases>

Note that you will have to have a user name and password to access the download area.

The license service is a separate installation kit, which you only need if you are going to install the license service.

3.3: Licenses

CoventorWare 10.0 uses Flexera Software licensing. This means that to run CoventorWare,

- a license daemon needs to be running on a host available on the network to the CoventorWare process,
- a valid license file, which is specific to the license server host, must be installed on the license server, and
- CoventorWare must be configured to point to the license server so it can check out a CoventorWare license.

The Coventor Licensing Service is installed separately from CoventorWare. Coventor provides two types of licenses:

- **Nodelocked:** Allows a user to run CoventorWare only on the same machine where the license is installed and the license server is running.
- **Floating:** Allows a user to run the software on any machine on the same network with the license server.

If you are running off of a floating license, you do not have to obtain and install an individual license for your machine; you need only configure CoventorWare to point to the license server; see [page 3-4](#) for details. If you are going to have the Coventor Licensing Service on the same machine that you are running CoventorWare, you need to download that installation kit, and follow the instructions in the *Coventor Licensing Installation Guide* starting on [page 3-1](#).

3.4: Installing CoventorWare

This section details how to install the CoventorWare product, which is installed using the *CoventorWare_10.000_GOLD.tar* file that you downloaded.

To install CoventorWare in your home directory, you do not need administrative privileges.

3.4.1: For Previous Users

If you have a previous version of CoventorWare, before you begin the installation procedure, you must stop any license services that may be running. You do not have to uninstall any previous version of CoventorWare, but you cannot have a license service from that version running because it will conflict with the CoventorWare 10.0 license services. You must request a 10.0 license, and once installed, it will be sufficient for both versions.

To stop the license server, use a shell window to cd to the location of the installation and enter one of the following:

```
CoventorWare10/licensing/linux/lmdown -c port@host
```

or

```
CoventorWare10/linux/lmdown -c path_to_license_file
```

3.4.2: Executing the Installation Program

In most cases, CoventorWare can be copied into place onto the hard drive by running the install script. To start the install:

1. Untar the *CoventorWare_10.000_GOLD.tar* file.
2. cd into the untarred directory, and enter `./install`, or in a File Browser window, double click on the *install* executable.

3.4.3: During Installation

During the installation you will be given several instructions:

1. Read the license agreement and then enter *y* or *n*.
2. Please enter the full path for the installation.
The user enters the full path, and a directory named *Coventor/CoventorWare10* will be created under the path specified.
3. Press the Enter key to start the installation. The installation will begin to unpack the CoventorWare files.
4. Do you wish to create a link to the CoventorWare startup program `../Coventor/CoventorWare10/bin/CoventorWare` in a common system directory that is in every users' default path?

If you answer yes, you will be asked to enter a directory location for the link (e.g. `/usr/local/bin`). If you do not have write permissions to the specified directory you will be warned and the link procedure will be skipped. You will be told to create the link manually.

5. The installer now checks for system libraries required for Coventorware. Make note of any missing packages, and use the Package Manager to find and install the missing libraries. See [page 3-6](#) for more details.

The CoventorWare 10.0 installation is complete. For more information on starting and running CoventorWare, see [page 3-6](#).

3.5: Running the Software

Each user will have a work directory that will be configured the first time they run the software.

1. Start the software: cd to your home directory, and enter `./coventorware10`. Along with the Console and projects dialog windows, the User Settings window will appear.



If you chose not the create a link to the CoventorWare program (see [page 3-3](#)), you will have to cd to the `Coventor/CoventorWare10/bin` directory and then type `./coventorware`.

2. Use the *Browse* folder icon to choose location of the work directory for your projects. The work directory should be located on a large disk. The default name for the work directory is *Design_Files*. Press <Enter> and the scratch and shared directory fields will be filled in accordingly. You can use the *Browse* folder icon to specify a scratch and shared directory location other than the one designated for the *Work* directory.
3. Set the Coventor license to 54000@host (where host is the name of the machine on which the licenses reside).



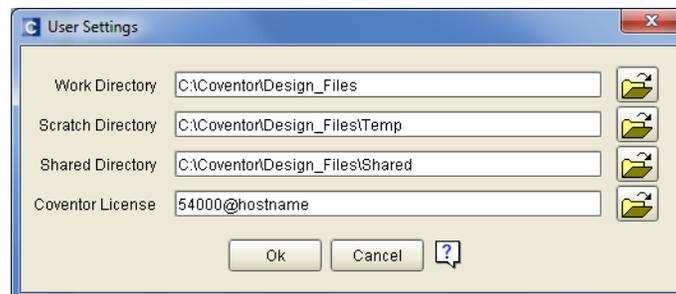
The numbers 54000 is the default port number, but your system administrator can change this port number if it conflicts with other port numbers.

If your company has a license service installed on more than one machine, you can specify multiple servers with this format:

`portnumber1@hostname1: portnumber2@hostname2: portnumber3@hostname3`

4. Click on **OK**. The Console and projects dialog box become active. For more instruction on how these and other CoventorWare dialogs function, see [“Basic MEMS Device Analysis” on page T2-1](#) in *MEMS Design and Analysis Tutorials*.

An example of a completed User Settings window is shown below:



The User Settings window only needs to be set the first time the software is run. It will not appear in subsequent start-ups of the software. If you want to check your user settings or want to change them, access the User Settings window from the Console's *User Settings* icon.

3.5.1: CoventorWare 10.0 Project Structure

CoventorWare 10.0 projects have a different structure than CoventorWare 2012 and earlier releases: the Schematics directory is no longer necessary and will not be created when a tutorial project is imported or a new project has been created. When you open a project created from a previous version of CoventorWare, it will be updated to the 10.0 format, but the Schematics directory will not be removed.

Note that if you try to access a 10.0 project in an earlier version of CoventorWare, the project will not appear in the Projects list because it does not have the Schematics directory.

3.5.2: Running Different Versions of CoventorWare

As mentioned earlier, users do not have to uninstall earlier versions of CoventorWare; the CoventorWare 10.0 license can be used to run older versions as well as the current version. But note that if you are already running one version of CoventorWare and want to launch another version of CoventorWare, start the second instance in a new terminal window.

3.6: Uninstalling CoventorWare

CoventorWare can be uninstalled by deleting the *CoventorWare10* directory.

To delete CoventorWare using a navigation window, select the installation directory, and then select *Edit > Move to Trash* menu, or right click on the directory and select *Move to Trash*.

To delete CoventorWare using a shell window, cd to the location of the installation and enter

```
rm -r CoventorWare10
```

3.7: Troubleshooting

3.7.1: Unblock CoventorWare Libraries on RHEL 5

If you are running Red Hat Enterprise Linux 5 and have SELinux enabled on your machine, you may need to run the `SELinux_unblock_all` script after installation and before starting CoventorWare. This script configures SELinux to allow all of the CoventorWare dlls and the third-party dlls incorporated into CoventorWare to run. The software installer automatically runs this script during installation. But if for any reason you need to run it manually, the script is located in `/Coventor/CoventorWare10/bin` and can be executed from any directory. The script has these command line options:

```
./SELinux_unblock_all help --- prints a help message about usage
```

```
./SELinux_unblock_all force --- executes the script even if SELinux is seemingly disabled
```

3.7.2: CoventorWare Cannot Check Out a Floating License

If you are running from a floating license, and you cannot get a license for CoventorWare or for a particular solver, it may be that all the license seats have been checked out by other users. To find out how many seats are available and which users have checked them out, cd to the `/Coventor/CoventorWare10/bin` directory, and execute `lic_status`. The license status will be reported in the terminal window.

3.7.3: CoventorWare will not Start

If the CoventorWare splash screen appears, but the software fails to start, the `.rc` file may be corrupted or may not exist. If the `.rc` file exists, delete it and restart the software. For CoventorWare 2012, 2014, and 10.0, this file is located in `$HOME/.config`. For CoventorWare 2010, this file is located in `$HOME`.

If the `.rc` file does not exist (failed to be created automatically), the user can create a `coventorware10rc` file in the `Coventor` directory in `~/.config` with the following text:

```
SHARED_SPACE=~/.Design_Files/Shared
SCRATCH_SPACE=~/.Design_Files/Temp
WORK_SPACE=~/.Design_Files
```

Users should substitute the name of their own workspace if it is not `Design_Files`.

3.7.4: Clicking on a Link in Online Help Generates an Error

On RHEL6, clicking on a link in an online help pdf generates an error. If the user dismisses the error, and clicks on the link again, the linked document will open.

3.8: Linux Libraries for CoventorWare 10.0

CoventorWare 10.0 on Linux requires several system libraries that must be provided by the Linux operating system. Some of these system libraries may not be present on a default Linux install and may need to be installed prior to running CoventorWare 10.0. When CoventorWare 10.0 is installed on a Red Hat Enterprise Linux system, the install script will check for the required libraries and will warn the user if any required libraries are missing. The warning will include suggested packages that can be downloaded to install the missing libraries. To download and install the required packages, do one of the following:

- Use the Package Manager, which can be accessed from *System > Applications > Add/Remove Programs*.
or
- Find the required RPMs from the install disk.

The RPM version numbers listed are suggestions only. More recent versions of the same packages should be used if available.

Users that are on a Linux operating system OTHER THAN Red Hat Enterprise Linux should use the tools specific to their OS to make sure that these libraries are present (and recognize that they are running on a non-supported operating system).

The CoventorWare log window will also display problems with missing libraries. If you try to run a CoventorWare component that depends on a missing system library, the log window will show you an error message similar to this:

```
error while loading shared libraries: libXpm.so.4: cannot open shared
object file: No such file or directory
```

3.8.1: Generate List of Required Libraries

If you would like to generate a list of required libraries:

1. cd to the `//CoventorWare10/bin` directory.
2. Execute the `checkRPMS` script with the `LISTONLY` argument:

```
./checkRPMS LISTONLY
```

This will create a text file named `CoventorWareRPMsLISTONLY.txt` in the user's home directory. CoventorWare is officially supported on 64-bit RedHat Enterprise Linux 5 and 6, so this list is intended as a guideline only and may not be accurate for all unsupported operating systems. Unsupported operating systems may require some system libraries to be installed manually.

Section 4: 3-D Graphics Requirements for CoventorWare

CoventorWare makes extensive use of 3-D graphics capabilities for displaying and animating models. To obtain acceptable 3-D rendering performance and quality, hardware acceleration for 3-D graphics is required. In particular, good support for the OpenGL standard must be present and must be accelerated using graphics hardware. This presents a new IT requirement for companies that are accustomed to supporting EDA tools. Because most EDA tools do not use 3-D graphics, the IT infrastructure that has been set up to support EDA tools often does not support the 3-D graphics requirements of CoventorWare.

In general terms, 3-D rendering can be done with 3-D graphics hardware, or entirely with software executed on the CPU, or with a combination approach such as Intel Integrated graphics. Dedicated 3-D graphics hardware with at least 128 MB of video memory provides the best quality and performance. nVidia and ATI are the leading suppliers of 3-D graphics hardware. Coventor generally recommends hardware based on nVidia chips because nVidia's software drivers provide more consistent support for OpenGL. Intel Integrated graphics will provide the same quality graphics as hardware approaches, but the performance may be noticeably slower. Entirely software-based rendering (the MESA OpenGL library, for example) should be avoided; it causes a degradation in quality and may be unacceptably slow.

Most recent laptop or desktop computers have reasonable support for OpenGL and graphics hardware built-in. However, many users would prefer to run CoventorWare on a Linux server, to take advantage of additional compute power, and would like to connect to the Linux server using a (thin) client running Windows or Linux. Although there are many remote desktop solutions available, very few support hardware acceleration for 3-D graphics. In order to provide the 3-D graphics support that CoventorWare requires, there are three general approaches:

1. CoventorWare runs on the server; 3-D rendering performed by the server.
2. CoventorWare runs on the server; 3-D rendering performed by the client.
3. CoventorWare Viewer runs on the client; 3-D rendering performed by the client (but the CoventorWare model builder runs on the server).

Each of these approaches is described in more detail below. Because of the large number of possible hardware and software configurations, Coventor cannot recommend any specific configurations. Customers are advised to evaluate the performance of one or more options and choose the one that best suits their needs.

Approach 1: CoventorWare runs on server, 3-D rendering on server

This approach requires installing at least one 3-D graphics card in the server and requires reasonable network bandwidth to the client. Performance can often be tailored to low bandwidth networks by adjusting compression settings in the software client (at the expense of rendering quality). Multiple graphics cards or other dedicated hardware, for example an nVidia Quadro Plex, can be used to support multiple CoventorWare users from a single server. In addition, client software that supports remote rendering must be installed on the client.

If the client runs Windows, suitable software includes

- TurboVNC in combination with Virtual GL: <http://sourceforge.net/projects/virtualgl/>
- Hummingbird Exceed onDemand™ : <http://connectivity.opentext.com/products/exceed-products.aspx>
- ThinAnywhere from Mercury International Technology, Inc.

If the client runs Linux, suitable software includes

- Virtual GL: <http://sourceforge.net/projects/virtualgl/>

Approach 2: CoventorWare runs on server, 3-D rendering on client

This approach requires installing a 3-D graphics card in the client if it does not already have one (or does not have Intel Integrated graphics). In addition, there must be a fast, low-latency network connection between the server and client. Even with a fast network connection, this approach often does not provide acceptable performance because of the huge amount of data that must be sent across the network.

If the client runs Windows 7 or Windows 8, it is necessary to install X-Server software on the client. Suitable software includes the following:

- Hummingbird Exceed 3D: <http://connectivity.opentext.com/products/exceed-products.aspx>

If the client runs Linux, no additional software is required.

Approach 3: CoventorWare runs on server and the client

With this approach, the user will run the compute-intensive part of CoventorWare on the server and the 3-D visualization part of Coventor's product on the client. 3-D rendering is performed by the client's hardware.

This approach can work with clients running either Windows or Linux, and requires

- a minimum of 2 GB of RAM on the client (2 GB or more is preferred);
- a 3D graphics card in the client, if it does not already have one (or it does not have Intel Integrated graphics);
- installing Coventor's product on both the server and the client; and
- sharing or mapping the server's storage area such that clients can access it.

For CoventorWare, the user could run the solver simulation on the server, and then copy the project or .gbak file to the client for visualization. Take care not to be writing to the project or gbak on the server while trying to copy the files to the client.

