ETAS COSYM V3.4.1

Getting Started Guide

Contents

1 Safety and Privacy Information

1.1 Intended Use

COSYM is the simulation and integration platform from ETAS for testing and validating ECU software in MiL and SiL environments. Areas of application include the simulation and testing of virtual ECU networks in real and virtual time and the integration of ECU functions and SiL models.

1.2 Target Group

This manual addresses qualified personnel working in the fields of automobile control unit development and calibration. Specialized knowledge in the areas of embedded systems and simulation is required.

1.3 Safety Advice

Adhere to the ETAS Safety Advice, which is available within COSYM (Help → Safety advice). ETAS GmbH cannot be made liable for damage that is caused by incorrect use and not adhering to the safety instructions.

1.4 Privacy Notice

Your privacy is important to ETAS GmbH so we have created the following privacy statement that informs you which data is processed in COSYM, which data categories COSYM uses, and which technical measure you have to take to ensure the user's privacy. Additionally, we provide further instructions where this product stores personal data, you can delete the same.

1.4.1 Data Processing

Note that personal data is processed when using this product. The purchaser of this product is responsible for the legal conformity of processing the data in accordance with Article 4 No. 7 of the General Data Protection Regulation (GDPR). As the manufacturer, ETAS GmbH is not liable for any mishandling of this data.

1.4.2 Data and Data Categories

Please note that this product creates files containing file names and file paths, e.g. for purposes of error analysis, referencing source libraries, or for communicating with third party programs.

The same file names and file paths may contain personal data, if they refer to the current user's personal directory or sub directories (e.g., `C:\Users\<UserId>\Documents\...`).

Furthermore, using ETAS Rapid Prototyping solutions in test vehicles connected to real sensors, buses or ECUs, the ETAS tools may get access to personal data of the driver.

This data can also be stored using dataloggers as provided by the ETAS Experiment Environment.

When using the ETAS License Manager in combination with user-based licenses, particularly the following personal data can be recorded for the purposes of license management:

- Communication data: IP address
- User data: UserID, WindowsUserID

2 Getting Started

This document is aimed at helping new users in getting started with Co-simulation of Systems (COSYM) which is an ETAS Product.

It provides information on preparation before installation, delivery packages, and user privileges. The sequences of both installation and uninstallation of COSYM are provided.

For further information, see COSYM_V3.4.1_User_Guide.pdf document.

You can also work without GUI using the provided Application Programming Interfaces (APIs), refer to chapter "COSYM REST APIs" in the COSYM_V3.4.1_User_Guide.pdf document for more details.

This document also provides information on SiL Linux installation/uninstallation procedure.

3 Installation

3.1 Preparation

Check the delivery package to ensure that it has all the deliverables ("Delivery Package" below). Make sure that your system corresponds to the system requirements. Depending on the operating system and network connection used, you must ensure that you have the necessary user privileges.

3.2 Delivery Package

The delivery package of COSYM includes:

- Software DVD which comprises of COSYM installer.
- Getting Started Guide.

3.3 User Privileges

You must have administrator rights to perform the following operations:

- Installation/uninstallation of COSYM.

> (i) **Note**
>
> In case administrator rights are not available, contact your system administrator.

3.4 System Requirements

This section describes the required hardware and software components to install and run different use cases in COSYM. Along with these prerequisites, it is necessary to have a valid license(s) as described in the section "COSYM Licenses" on page 33".

3.4.1 General

The following system requirements are necessary to install and run COSYM.

	Minimum requirements	Recommended
Hardware	— Intel Core i5-8500 6x3.0 GHz — 8 GB RAM — DVD ROM Drive — Ethernet adapter — Graphics card with a minimal monitor resolution of 1600x900 with 32-bit color (HD ready) — 8 GB disk space	— Intel Xeon 6x3.7 GHz — 32 GB RAM — DVD ROM Drive — Ethernet adapter with Express card — Graphics card with a monitor resolution of 1920x1024 with 32-bit color (HD) — Display settings for scale and layout is 100% — 16 GB disk space
Operating system	— Windows 10 (64-bit)	— Windows 10 (64-bit) — Windows Server 2019 (64-bit)
Java	— Java 11	— Java 11

Tab. 3-1: General system requirements

It is recommended to use operating system and keyboard in English (US).

3.4.2 Interoperability with other Applications

COSYM operates with the applications listed in the Tab. 3-2:

Application	Purpose	Supported versions
ETAS Experiment Environment (ETAS EE)	Run and visualize the simulation experiment	V3.9.4
ETAS INCA	Calibrate the VECU parameters during simulation	V7.2.17, V7.4.3, V7.4.4, V7.4.5
ETAS INCA for SiL (XCP Client)	Generate A2L files	V1.0.0
MOCA Connector	Run simulation using LSS PC use case	V1.0
ETAS License Manager	License management	V1.8.11.24
Parametrization Assistant	Support of Parametrization Assistant feature	V3.4.1
MATLAB®/Simulink®	Generating MATLAB®/Simulink® models	R2018b, R2019a, R2019b, R2020a, R2020b, R2021a, R2021b, R2022a[1]
ATS Simulator	Simulation engine	V3.2.13
FMU	Support of FMU models in COSYM	FMI Standard V2.0 for co-simulation
cmake[2]	Cross platform tool to manage the build process	V3.17.1-win64
MDA	Visualize the signals of the generated mf4 files	V7.2.11 and higher version of V7.2.XX where X is the version number. And additionally, V8.5.3.
GCC compiler	Compilation	9.1.0
Visual Studio	Compilation	Visual Studio (Community) 2019

Tab. 3-2: Interoperability with other applications

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[1] COSYM is compatible with MATLAB®/Simulink® versions from R2018b to R2022a. However, COSYM still supports import and code generation for the models generated from the older versions.

[2] The cmake application which is installed with COSYM can be used for COSYM use case only.

3.4.3   Compilers

To build a SiL system, you need to have an appropriate compiler. The build process takes care of the compilation internally.

COSYM supports the compilers mentioned below:

— GCC 9.1.0 compiler of 32-bit/64-bit
   COSYM ships GCC 9.1.0 compiler along with the installer and this is used as a default compiler during build.

— Visual Studio (Community) 2019
   It is a freeware and can be downloaded from the internet. Refer to "Compilers" section in the COSYM_V3.4.1_User_Guide.pdf document.

3.4.4   Simulation Result Visualization

— MDA
   - It is needed to visualize the signals of the generated `*.mf4` files that contain the simulation result.
   - Please contact ETAS sales manager to install MDA.

3.4.5   Supporting Versions of COSYM for Migration

COSYM supports migrating the projects created in the two previous versions of COSYM into a latest version. The migration takes place only for the SiL projects as COSYM V3.4.1 supports SiL use case only.

> (i) **Note**
>
> The systems mapped with HiL targets or the systems containing HiL models in a project should be adapted to SiL before migrating into COSYM V3.4.1.

The supported versions are as below.

— COSYM V3.2.0
— COSYM V3.3.0

3.5   Installing COSYM

It is necessary to consider the points listed below while installing COSYM.

- Make sure that you have maintained minimum space in `c:\` drive to complete the installation even if you choose other drives. The space required in `c:\` drive is the size of the installer and additional 1 GB space for caching and installing 3rd party software.

- If you get a security alert from Windows Firewall configuration during COSYM installation, then allow the "mongodb" to communicate with the network and continue the installation process. You will get this alert when you are installing COSYM at first time.

- It is not recommended to install COSYM through network drive. If installation files are in a network drive, then copy the files to your local drive and install. If you install through network drive, you might face issue with the oscilloscope in ETAS Experiment Environment.

- The MATLAB® application(s) has(have) to be closed before installing COSYM to associate the target.

> ⓘ **Note**
>
> - Installation of two or more versions of COSYM in a same system is not supported.
> - The lower version of COSYM V3.4.1 should not be installed on a system where COSYM V3.4.1 is installed already. If you want to install the lower version, then uninstall COSYM V3.4.1 manually and install the older version. It is necessary to have the compatible components while installing an older version.

To install COSYM through installation DVD

1. Insert the installation DVD into your computer disc.
2. Go to the directory "COSYM V3.4.1 setup files" and run `setup.exe`.
⇒ The "Welcome" dialog box is displayed.

Fig. 3-1: Welcome window

3. Click **Next**.

⇒ The "End user license agreement" dialog box is displayed.

4. Read the License Agreement and select **I read and accept the terms in the license agreement** option.

> ⓘ **Note**
>
> You can continue the installation process, only if you accept the license agreement.

5. Click **Next** to continue the installation.

⇒ The "Safety Advice" dialog box is displayed.

6. Read the COSYM Safety Advice and select the checkbox, **I read and accept the Safety Advice**.

> ⓘ **Note**
>
> Use **Back** to go to the previous window or **Cancel** to cancel or **Next** to proceed with the installation.

7. Click **Next**.

⇒ The "**Installation Path**" dialog box is displayed to install parameterization assistant.

8. The default path to install parameterization assistant is `C\ETAS\Para-meterAssistant`3.4. Specify the new path or click **Browse** to select it if required.

9. The default port used to install parameterization assistant is "3006". Change the port number, if required. Refer to "Network/Port Configuration" on page 29 for more information.

> **ⓘ Note**
>
> The parameterization assistant port number information is saved in the ‹Parameterization Assistant installation path›`\paconfiguration.properties` file.
>
> If you want to change the port number after the COSYM installation, then close COSYM and update the new port number in the same file. Restart COSYM again.

10. Click **Next**.
⇒ The "Installation Path" dialog box is displayed.

11. Specify the Installation path or click **Browse...** to select the folder to install COSYM. By default, `C:\ETAS\COSYM3.4` folder will be created for installation.

12. Specify the path or click **Browse...** to select the folder for installing the COSYM demo data. By default, `C:\ETAS\ETASData\COSYM3.4` folder will be created for copying COSYM demo data and automation documents.

13. Change the COSYM port number if required. By default, port `8181` is used for COSYM installation. Refer to "Network/Port Configuration" on page 29 for more details.
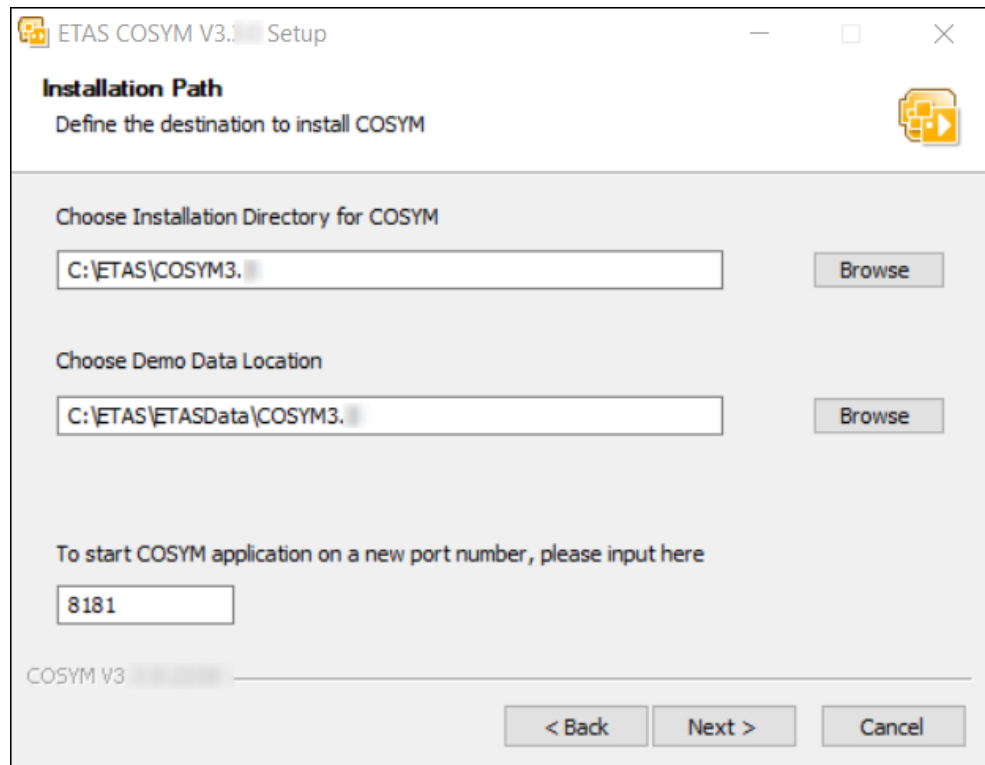
Fig. 3-2: An installation path window

14. Click **Next** to proceed to the next installation step.

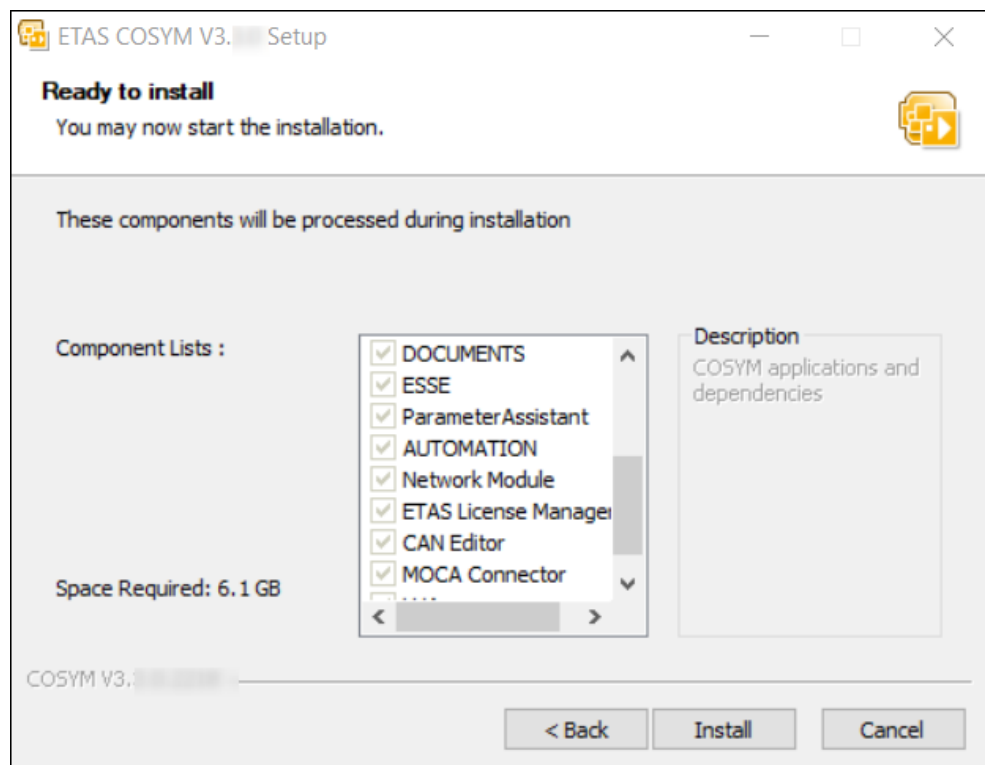⇨ The "Ready to install" dialog box is displayed.

Fig. 3-3: The "Ready to install" dialog box

> (i) **Note**
>
> The 3rd party software like Visual C++, Microsoft.Net applications, etc. are the licensed software which are provided by ETAS. These software also come along with ETAS internal license agreement with Microsoft®.

15. Click **Install**.

⇒ The installation process is initiated.
   A progress indicator shows the progress of installation.

16. An "Associate with MATLAB" window is displayed with the list of all the installed MATLAB versions.

17. If MATLAB® application is installed in your system, then select the MATLAB version(s) and click **Register** to continue.

⇒ The "COSYM Communication Toolbox" is added in the Simulink library.
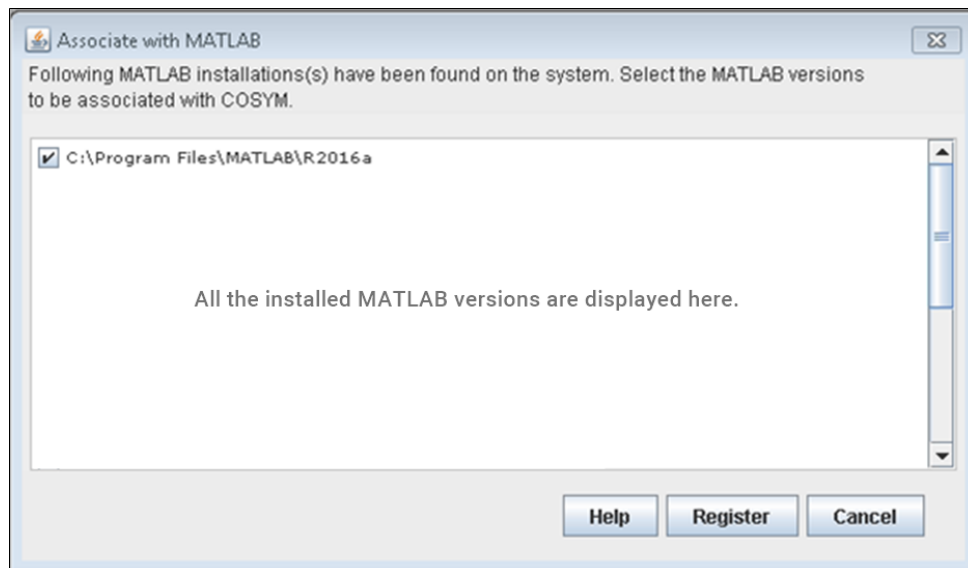
Fig. 3-4: MATLAB® versions

⇒ If MATLAB® application is not installed in your system, the installation process continues and installs COSYM. You can also associate the target after COSYM installation. Refer to "Associating COSYM with MATLAB®" on page 25 to associate the target.

> (i) **Note**
>
> If a warning message appears that COSYM environment variables were not set during installation, you must add them manually. Follow the steps in "Adding System Environment Variables" on the next page.

18. A "Completing ETAS COSYM V3.4.0 Setup" dialog box is displayed after the completion of the installation process.

19. Click **Finish** to complete installation.

⇒ COSYM is installed in the selected location.

It is mandatory to restart your system after the completion of COSYM Installation.

You can also install COSYM through command prompt using "Silent Install-ation/Uninstallation Commands". Refer to "Silent Installation/Uninstallation " on page 19.

Once you install COSYM, it also delivers the "SiL Linux Runtime" package. The installation files of the package is available inside the ‹COSYM_Installation_Dir-ectory›. COSYM will not install this by default. You need to install it explicitly based on your requirement. Refer to the "Setting up a SiL Linux System" on page 23" for more details.

> ⓘ **Note**
>
> If you prefer to install COSYM in the directory `C:\Program Files`, you will need administration rights not only for the installation process, but for every launch of COSYM.
> Two additional messages of the **User Account Control** appear after accepting the safety acknowledgement when launching COSYM V3.4.1 and also when shutting down the COSYM application.

3.5.1 Installing Hotfix Installer

 - The hotfix installer must be installed upon the released COSYM installer.
 - System reboot is not necessary after hotfix installation.

3.5.2 Adding System Environment Variables

If the following message appears that COSYM environment variables were not set during installation, you must add them manually.
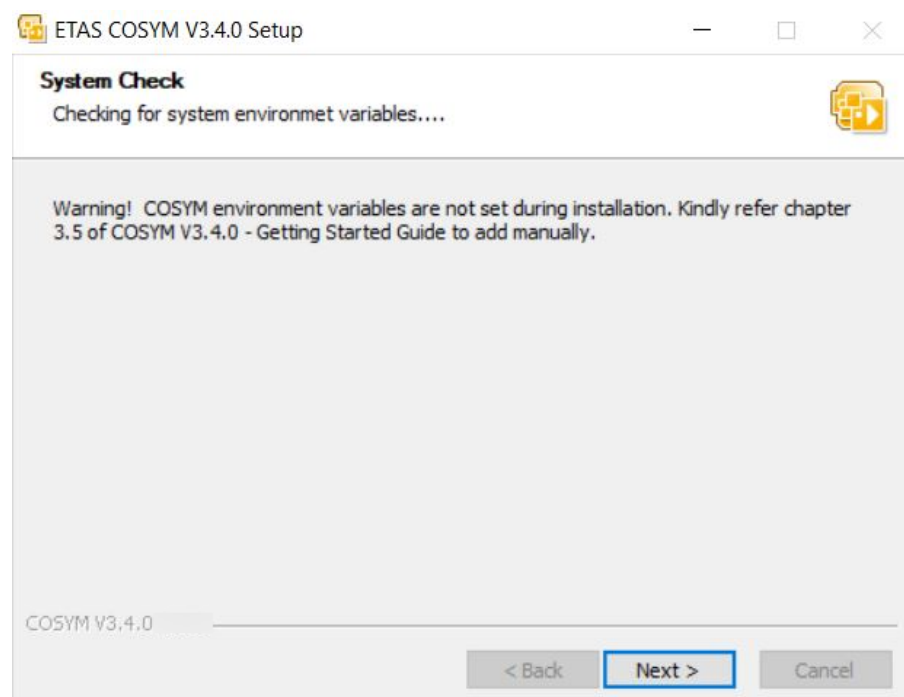
Fig. 3-5: Message to set environment variables manually

To add system environment variables manually

1. Click the Start Menu and search for "Environment Variables".

⇒ The **Edit the system environment variables** option appears in the search results.

2. Click this option to open the system properties window.

3. Click **Environment Variables...**.

⇒ All environment variables for user and system appear.

5. In the system variables area, double-click the path.

6. Click **New** and add the following environment variables one by one.
%COSYM_EXECUTABLE%

%ESSE_LIB64%

%ESSE_BIN64%

%SIM_LIB64%

%SIM_LIB32%

7. Click **OK** and restart the system.

3.6 Silent Installation/Uninstallation

The COSYM V3.4.1 is enabled with the silent installation which requires no user interaction. The installation or uninstallation process runs in the background.

You are not able to change any of the options once installation process is initiated.

3.6.1 Using Configuration File

The `DefaultConfig.cfg` is a configuration file where you can configure the parameters such as `InstallationDirectory`, `DemoDataDirectory`, `CosymPort`, `ParamAsstDirectory`, `ParamPort` which are described in the Tab. 3-3. You can either use the default values of the parameters in the file or you can specify the values as per your needs.

The configuration file is available along with the `COSYM V3.4.1 setup files` inside the provided DVD1 or in the ETAS download portal (https://license.etas.com/flexnet/operationsportal/logon.do). To make the changes, you can open this configuration file in any of the text editor, update and save it.

During the execution of the silent installation, you can specify the path of this configuration file.

3.6.2 Executing Silent Installation/Uninstallation

— It is necessary either to specify the installation path (`/INST`) or specify the configuration file (`/DefaultCfg`) for execution.

— It is mandatory to specify "`YES`" to proceed the silent installation for the options, "`EULAAccepted`" and "`SafetyHintsAccepted`".

-

The table below describes the parameters and the values of silent installation.

Parameters	Description	Default Value	Mandatory Value
`EULAAccepted`	The EULA (End Use License Agreement)	-	YES
`SafetyHintsAccepted`	The ETAS safety hints	-	YES
`/AllowRestart`	Specify `YES` to system restart after installation or specify `NO` to no system restart	If this command is not mentioned, considered as `/AllowRestart=NO`	-
`/S`	Command to start the silent installation	-	`/S`
`/INST`	Specifying the installation path	-	-
`/DefaultCfg`	Specifying the config file path	-	-
`InstallationDirectory`	Installation directory	`C:\ETAS\COSYM3.4`	-
`DemoDataDirectory`	Demo data directory	`C:\ETAS\ETASData\COSYM3.4`	-
`CosymPort`	COSYM port	`8181`	-
`ParamAsstDirectory`	Parameter assistant directory	`C:\ETAS\ParameterAssistant3.4`	-
`ParamPort`	Parameter port	`3006`	-

Tab. 3-3: The parameters of silent installation

To execute the silent installation

1. Go to **Start** menu on Windows and type "cmd".

⇒ Command prompt window is displayed.

2. Now, run the silent installation/uninstallation command as specified in the section 3.6.3 and press ‹ ENTER ›.

⇒ The initiated command executes in the background.

3.6.3 Silent Installation Commands and Examples

— Installation by using /INST with automatic restart
  • Command:
    ‹COSYM Installer location› /S /INST=‹Installation Path› /EULAAc-cepted=YES /SafetyHintsAccepted=YES /AllowRestart=YES

  • Example:
    C:\COSYM\COSYM_installer_3_4.exe /S /INST-T=C:\ETAS\COSYM3.4 /EULAAccepted=YES /SafetyHint-sAccepted=YES /AllowRestart=YES

— Installation by using /INST without restart
  • Command:
    ‹COSYM Installer location› /S /INST=‹Installation Path› /EULAAc-cepted=YES /SafetyHintsAccepted=YES /AllowRestart=NO
    ‹Or›
    ‹COSYM Installer location› /S /INST=‹Installation Path› /EULAAc-cepted=YES /SafetyHintsAccepted=YES

  • Example:
    C:\COSYM\COSYM_installer_3_4.exe /S /INST-T=C:\ETAS\COSYM3.4 /EULAAccepted=YES /SafetyHint-sAccepted=YES /AllowRestart=NO
    ‹Or›
    C:\COSYM\COSYM_installer_3_4.exe /S /INST-T=C:\ETAS\COSYM3.4 /EULAAccepted=YES /SafetyHint-sAccepted=YES

— Installation by using /DefaultCfg
  • Command:
    ‹COSYM Installer location› /S /DefaultCfg="‹ConfigFilePath›" /EULAAccepted=YES /SafetyHintsAccepted=YES

  • Example:
    C:\COSYM\COSYM_installer_3_4.exe /S /De-faultCfg="C:\COSYM\Config\DefaultConfig.cfg" /EULAAc-cepted=YES /SafetyHintsAccepted=YES
    ‹Or›
    Add /AllowRestart=YES to the command above to restart system.

- Uninstallation
  - Command:
    ‹COSYM Installed location› `uninstall.exe /S`
  - Example:
    `C:\ETAS\COSYM3.4\uninstall.exe /S`
    ‹Or›
    Go to the COSYM installed location and execute the command below from the command prompt directly:
    `uninstall.exe /S`

3.7   Setting up a SiL Linux System

Once COSYM is installed, the installation files for SiL Linux system can be found at ‹COSYM_installation_directory›\XSimRuntime folder.

The XSimRuntime folder contains the file below.

- Install_XSimRuntime.py file
  A script which helps to install/uninstall the SiL Linux system and install/uninstall the license file too.

To install the packages on Linux machine

- **Swig**
  - Open a command prompt and execute the command below:
    "sudo apt-get install swig"
- **Python 3 packages**
  - Open a command prompt and execute the command below:
    "sudo apt-get install python3"
    "sudo apt-get install libpython3.7-dev"
- **pip and numpy packages**
  - Open a command prompt and execute the command below:
    "sudo apt install python3-pip"
    "pip3 install numpy"

To run the script, follow the steps below

- Open a command prompt and execute the command below:
  - start.bat

- Run the script Install_XSimRuntime.py with the suitable command based on your requirement as given in the Tab. 3-4.

Commands	Remarks
Install_XSimRuntime.py --help	Opens the **Help** menu
Install_XSimRuntime.py install --package	Installs XSimRuntime if the *.tar file is available in the current script directory. It starts license server too.
Install_XSimRuntime.py install --package ‹tarPakage file path›	Installs XSimRuntime from the specified path
Install_XSimRuntime.py install --license	Installs license file from the current script directory
Install_XSimRuntime.py install --license ‹license file path›	Installs license file from the specified path

`Install_XSimRuntime.py`
`install --package --`
`ipaddress 192.168.40.20`
`--username admin --pass-`
`word etas`
	The `--ipaddress`, `--username`,`--password` are the optional arguments.
	
	If there is any change in the default parameters, append these optional arguments with the installation/license command.
	
	Default remote PC details are given below:
	— IP address: `192.168.40.20`
	— User name: `admin`
	— Password:

`Install_XSimRuntime.py` `uninstall --package`	Uninstalls XSimRuntime from the remote PC and stops license server
`Install_XSimRuntime.py` `uninstall --license`	Removes all the license files from the remote PC

Tab. 3-4: Commands to run the script

3.8 Associating COSYM with MATLAB®

If MATLAB® application is installed after installing the COSYM, then target can be associated with MATLAB® by running the ‹COSYM Installation Directory›\COSYM Tools\MATLABassociation.exe file. To perform this operation, you must have administrator privileges.

> (i) **Note**
>
> MATLAB® application(s) has(have) to be closed before associating the target.

To run the MATLABassociation.exe

1. Double-click on the ‹COSYM Installation Directory›\COSYM Tools\MATLABassociation.exe file.
⇒ The "Associate with MATLAB" window is displayed with the list of all installed MATLAB® versions.
2. Select the required MATLAB® versions with which the target has to be associated with.
3. Click **Register** to continue.
⇒ The "COSYM Communication Toolbox" is added in the Simulink library.

3.9 Dissociating with MATLAB®

Already associated MATLAB® version(s) can be dissociated by running the ‹COSYM Installation Directory›\COSYM Tools\MATLABdissociation.exe file.

> (i) **Note**
>
> MATLAB® application(s) has(have) to be closed before dissociating the target.

To run the MATLABdissociation.exe

1. Double-click on the ‹COSYM Installation Directory›\COSYM Tools\MATLABdissociation.exe file.
⇒ The "Disassociate with MATLAB" window is displayed with the list of all installed MATLAB versions.
2. Select the required MATLAB versions with which the target has to be disassociated with.
3. Click **Unregister** to continue.
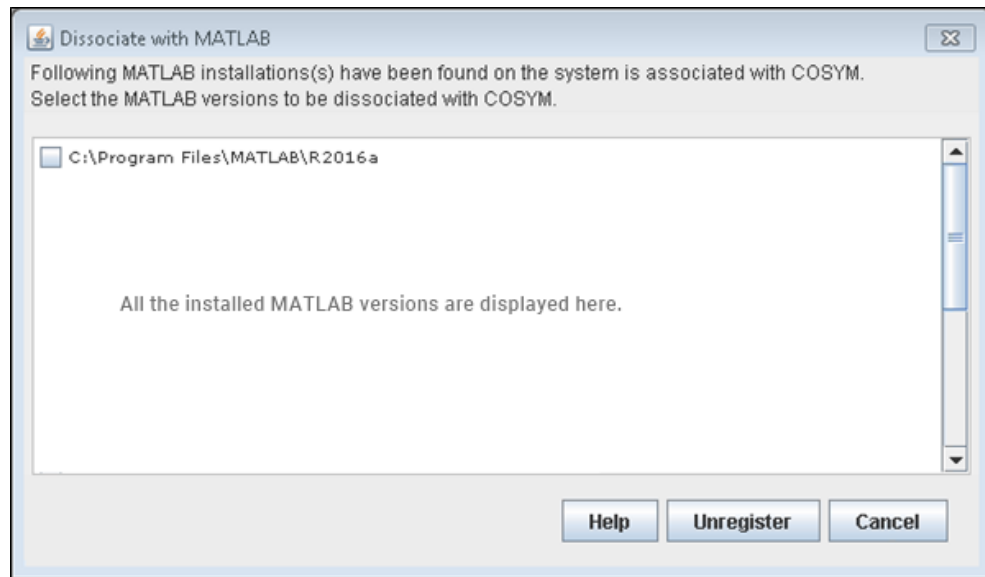⇒ The "COSYM Communication Toolbox" is removed from the Simulink library.

Fig. 3-6: Dissociation with MATLAB

4 Administration

4.1 Installer Components

The following necessary components are installed during installation:

- DotNet4.6.1
- VB6 Components
- Microsoft DirectX9
- Visual C++ 2015 Update 2 Redistributable (x86)
- Visual C++ 2015 Update 3 Redistributable (x86)
- Visual C++ 2015 Update 2 Redistributable (x64)
- Visual C++ 2013 Redistributable (x86)
- Visual C++ 2010 SP1 (x86) Redistributable Package
- Visual C++ 2010 SP1 (x64) Redistributable Package
- Visual C++ 2019 (x64) Redistributable Package
- BOA ViBA
- SMFEditor
- ParameterizationAssistant
- ESSE
- ETAS License Manager (x86)
- ETAS License Manager (x64)
- EBI Distribution Package x86 v2.25.0.84
- EBI Distribution Package x64 v2.25.0.84
- EBI Integration Package x64 v2.25.0.84
- Experiment Environment V3.9.4
  - LABCAR Parameterization Assistance
  - Experiment Environment
- VNET V1.7.0.0A
  - VNET
- COSYM
  - ASAM XIL
  - MOCAConnector
  - TARGET ATS
  - NETWORK MODEL
  - TOOLS
  - DOCUMENTS
  - AUTOMATION

- CAN EDITOR
- APPLICATION
- LUA

The components below will also be installed during COSYM installation under
‹*COSYM Installation path*›\COSYM3.4\Software folder.

— 7Zip
— cmake-3.17.1-win64[1]
— jacob
— jdk-11.0.9.101-hotspot
— linux_gnu-7.4.0-linux
— mingw_gnu-9.1.0-win
— ninja-1.10.0-win
— Perl
— Python37
— swagger
— thirdpartydlls
— zipper_tool

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[1] The cmake application which is installed with COSYM can be used only for COSYM use case.

4.2 Network/Port Configuration

A port is a communication endpoint. It is a logical device that identifies a service or a process. A number is assigned to your sessions and server applications in an IP[1] network. Port numbers are standardized by the Internet Assigned Numbers Authority (IANA). A specific network port is identified by its number which is referred to as port numbers, the IP address to which the port is associated with and the type of transport protocol used for communication.

Every accessible server has one or more IP addresses and each of those IP addresses have a large range (0 – 65,535) of ports that can be used. You can utilize the Port numbers between `1024 – 65535` for configuring COSYM_KARAF. It means that you cannot use the Port numbers between `0-1023` as these are used as system ports.

The ports which is used for COSYM installation is described below:

4.2.1 Port Used for COSYM

The default Port configured for COSYM_KARAF server during COSYM installation is port `8181` for HTTP communication.

This configuration is done in the below mentioned file: %COSYM_INSTALLATION_PATH%/`COSYM_KARAF/etc/org.ops4j.pax.web.cfg`.

If the default port is not free, an error message is displayed as shown in the Fig. 4-1. In such a case, you can change the port number as described in the steps below.

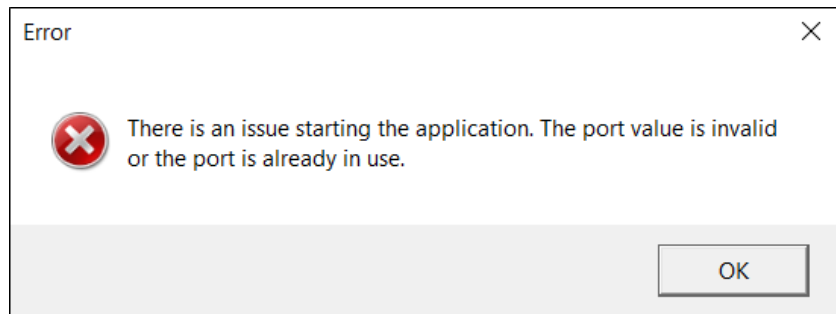**Fig. 4-1:** An error while configuring port

To change the port number

1. Go to <*COSYM Installation location*>`\COSYM_KARAF\etc` folder.
2. Open the `org.ops4j.pax.web.cfg` file in any of the text editor.
3. Update the new port value in the field `org.osgi.service.http.port` where the default value `8181` is mentioned.
4. Click **Save** to save the `org.ops4j.pax.web.cfg` file.
5. Restart COSYM.

---

[1] Internet Protocol

4.3 Firewall Configuration

The inbound rules are configured for COSYM which filters the traffic passing from the network to the local computer which leads to protect the network from malware attacks.

When COSYM is installed in your system, you can view the firewall configuration in the Windows Firewall with Advance Security application.

To view the configuration

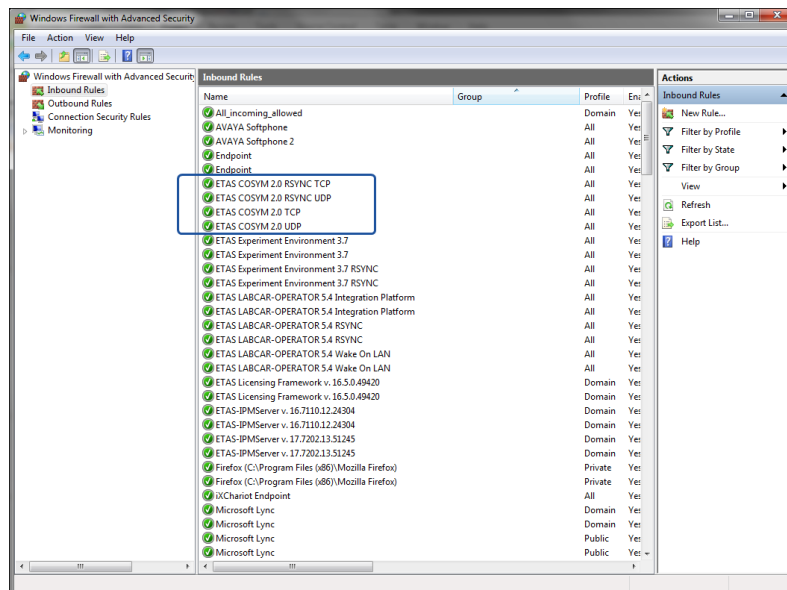1. Open "Windows Firewall with Advance Security" and click **Inbound Rules** in the left panel.

Fig. 4-2: Firewall configuration

4.4 Server Security

COSYM can also be accessed through REST APIs exposed by COSYM.

The product is hosted using COSYM server. The server is deployed and hosted on the local system with the port number given by you during installation of the product.

All IP traffic to the hosted COSYM is limited to the local system. The hosted COSYM on the server cannot be accessed outside the local system using the IP address of the system or the port number.

4.5 Server Performance

The COSYM V3.4.1 is a standalone application. It is deployed on a system and can be accessed or used on that system alone. COSYM can be accessed via Graphical User Interface and also through the REST APIs exposed by COSYM.

4.6   Build Information

To view the COSYM build information, go to **Control Panel** → **Programs and features** → **COSYM 3.4.0.xx** where xx is the build number.

This helps to raise your concerns to the concerned team, if you face any issue in a particular build.

5 Licensing the Software

5.1 Licensing

A valid license is required to use the software. You can obtain a license in one of the following ways:

- from your tool coordinator
- via the self-service portal on the ETAS website at
  www.etas.com/support/licensing
- via the ETAS License Manager

To activate the license, you must enter the Activation ID that you received from ETAS during the ordering process.

For more information about ETAS license management, see the ETAS License Management FAQ or the ETAS License Manager help.

To open the ETAS License Manager help

The ETAS License Manager is available on your computer after the installation of any ETAS software.

1. From the Windows Start menu, select **E** › **ETAS** › **ETAS License Manager**.

   The ETAS License Manager opens.

2. Click in the ETAS License Manager window and press F1.

   The ETAS License Manager help opens.

5.2 COSYM Licenses

5.2.1 Licenses to Use COSYM

License name	Description
COSYM_SIL	Starts COSYM which uses COSYM SiL use case. It enables the integration and configuration of C code, FMU, and MATLAB®/Simulink® models for simulation on a Windows PC.
COSYM_PA	To use the parameter assistant feature. It helps with the parameterization of models by enabling a self-definable arrangement and grouping of parameters across the models of a system. This allows application-specific views to be generated that make parameterization easier.
COSYM_SIL_EE	To use the SiL features in ETAS EE. It is possible to perform simulations and experiments based on the integrated model.
COSYM_VNET	To use the VNET feature. COSYM VNET (Virtual Networks) enables the simulation of a CAN bus.
COSYM_XCP	To use the XCP feature. COSYM XCP helps to generate the A2L files.

5.2.2 Licenses to Use Editors

License name	Description
COSYM_NAE	To use Automotive Ethernet. COSYM NAE (Network Integration Automotive Ethernet) is used for configuring and carrying out tests that require a rest-bus simulation with Automotive Ethernet.
COSYM_NIC	To use CAN editor/CAN FD. COSYM NIC (Network Integration CAN) is used for configuring and carrying out tests that require a rest-bus simulation with CAN.

6 Launching COSYM

Once COSYM is installed in your system, you can start COSYM as given below.

To launch COSYM

1. Perform one of the following steps:
   - Go to **Desktop** and then double-click 📇.

     ‹ Or ›

   - In Windows 7 systems, go to **Start** menu → **All Programs** → **ETAS COSYM** and then click **COSYM V3.4.1**.

     ‹ Or ›

   - In Windows 10 systems, go to **Windows** icon → **ETAS** → **ETAS COSYM** and then click **COSYM V3.4.1**.

2. Read the "ETAS Safety Advice" document and click **Acknowledged**.

⇒ Splash screen is displayed as shown in the Fig. 6-1 .

Fig. 6-1: Launching COSYM

⇒ Once COSYM is launched, COSYM project screen is displayed as shown in the Fig. 6-2.
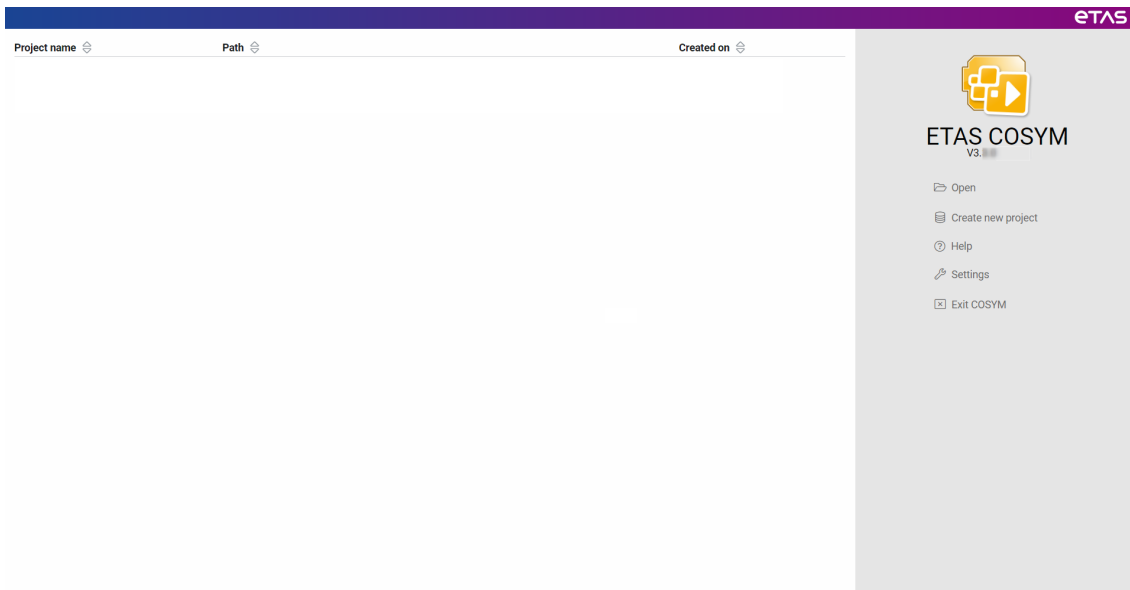
Fig. 6-2: COSYM project screen

6.1   Manuals and Tutorials

Go to **Start** menu → **All Programs** → **ETAS COSYM** → **Manuals and Tutorials** to view the User documents which are listed below.

- COSYM_V3.4.1_Release_Notes.pdf
- COSYM_V3.4.1_vNET_Guide.pdf
- COSYM_V3.4.1_Getting_Started_Guide.pdf
- COSYM_V3.4.1_Software_Compatibility_List.pdf
- COSYM_V3.4.1_User_Guide.pdf
- COSYM_V3.4.1_Tutorials.pdf
- ETAS_Experiment_Environment.pdf
- SiL_Python_API_Guide.pdf
- Editors folder contains:
  - CAN_Editor_User_Guide.pdf
  - Network_Model_User_Guide.pdf

6.1.1   References

The documents listed below are also available in the COSYM installation location.

- ASAM-XIL Documentation
  < COSYM Installation Directory > \ASAMXil\Manual\ETAS_XILAPI.chm
- CAN Editor API Documentation
  < COSYM Installation Directory > \CANStandaloneEditor\Manual\CAN_API.chm

6.2   COSYM Tools

Go to **Start** menu → **All programs** → **ETAS COSYM** → **COSYM Tools** to view the
COSYM tools which are listed below:

— `MATLABassociation.exe`
Refer to "Associating COSYM with MATLAB®" on page 25 for more details.

— `MATLABdissociation.exe`
Refer "Dissociating with MATLAB®" on page 25 for more details.

6.3   COSYM Log Files

If you encounter an anomaly or error in the functioning of COSYM, refer to the log
files available in the folder below.

To view the installation log file

1.   Go to `C:\ETAS\LogFiles\COSYM\Logs\` folder and view the installation
logs at `CosymInstall_`<Installation Date & Time>`.log` file.

To view the log files

1.   Go to <*Installation Directory*>`\COSYM_KARAF\data\log` folder.

The log files available in COSYM are listed below:

— **cosym.log**
This is an "application log" file which stores all information pertaining to
COSYM functioning.

— **karaf.log**
This log file is a "server log" file which contains details related to COSYM_
KARAF Server.

— **appwrapper.log**
This log file is an "application log" file which contains details about the
COSYM wrapper.

— **<network_module name>_network.log**
This log file contains the details of the corresponding network model.

— **<CANStandalone>_logfile.log**
This log file will be generated only when you create/modify a CAN model.

7   Exiting COSYM

This feature helps to exit COSYM.

<u>To exit COSYM</u>

1. Perform one of the step below to exit COSYM.
   - Click **☒ Exit COSYM** on the project screen.

     ‹ Or ›

   - Go to **File** menu → **Exit COSYM**.

     ‹ Or ›

   - Click ☒ icon on the top-right corner of COSYM.

   ⇒ It closes COSYM.

A warning message is displayed in the following cases as mentioned below:

   - Unsaved changes in COSYM
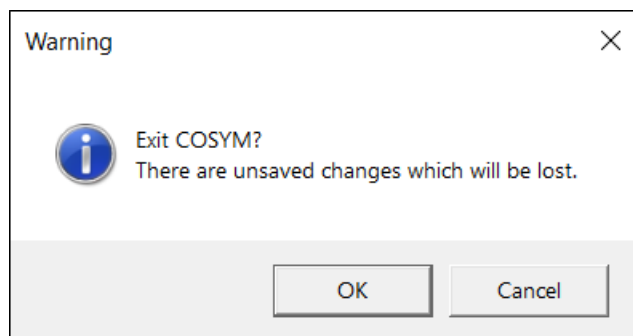   - Any of the hardware editor is opened through COSYM

Fig. 7-1: Warning window

2. Click **OK** to exit the COSYM without saving the modified changes.

   ⇒ It closes COSYM.

3. Click **Cancel** to cancel the exit operation and perform the following:
   - Save the unsaved changes in COSYM.

     ‹ Or/and ›

   - Save the modified changes in the editor and close it.

   ⇒ It saves the modified changes in the COSYM/hardware editor. Now, it is safe to exit the COSYM.

ⓘ **Note**

In case you are unable to close COSYM using ☒ icon, then close it forcefully through the task manager.

---

8 Upgrading COSYM

You have to uninstall any previous version of COSYM before installing a new version. Overlapping of installations is not possible.

Refer to "System Requirements" on page 9 for more details on necessary hardware and software components required for installation.

To upgrade COSYM

1. Click ☒ icon to close COSYM.

2. Uninstall COSYM Package "Uninstalling" on page 40 on how to uninstall the COSYM package.

3. Install latest version of COSYM. "Installing COSYM" on page 12 for more details.

8.1 Upgrading COSYM Without Uninstalling the Previous Version

If you try to upgrade COSYM without uninstalling the previous version of COSYM, then follow the steps below to upgrade it.

Refer to "System Requirements" on page 9 for more details on necessary hardware and software components required for installation.

ⓘ **Note**
_____

If any file inside COSYM is opened, then uninstallation cannot be performed. To uninstall, close all the opened files.

To upgrade COSYM

1. Insert the installation DVD into the drive of your computer.
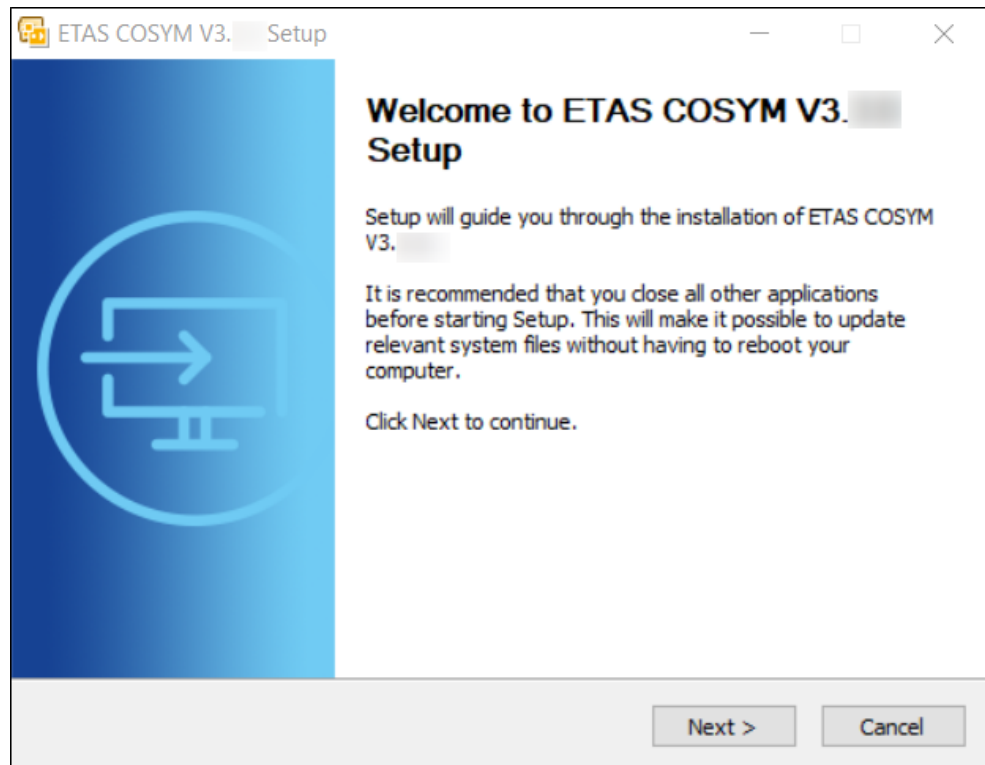
⇨ The "Welcome" dialog box is displayed.

Fig. 8-1: Welcome window

2. Click **Next**.

⇨ An "Uninstall previous products" dialog box is displayed.

3. Click **Uninstall now**.

⇨ Uninstallation process is initiated. Once it uninstalls all the installed packages, you will get the message that `Uninstallation succeeded`.

4. Click **Next**.

⇨ An "End user license agreement" dialog box is displayed. Now continue the installation process as described in the "Installation Steps" section .

9 Uninstalling

You should have administrator rights to uninstall.

> (i) **Note**
>
> If any file inside COSYM is opened, then uninstallation cannot be performed. To uninstall, close all the opened files.

To uninstall COSYM

1. Close COSYM.
2. Go to **Control Panel** on windows **Start** menu.
3. Click **Uninstall a program** in **Programs and Features**.
⇒ The "Programs and Features" window is displayed.
4. Select the COSYM version to uninstall click **Uninstall**.
⇒ The "Welcome" dialog box is displayed.
5. Click **Next** to proceed with the uninstallation process.
⇒ The "Ready to uninstall" dialog box is displayed.

> (i) **Note**
>
> By default, all the available components are selected for the uninstallation process. You can make the necessary changes.

6. Click **Uninstall**.
⇒ Uninstallation process is initiated.

> (i) **Note**
>
> When you uninstall COSYM, the demo data/documents will also be deleted from the specified directory.

7. Click **Finish** to complete the process.
⇒ The COSYM is uninstalled from the computer.

9.1 Uninstalling Hotfix Installer

- Uninstall the hotfix installer either from control panel or run the `uninstall.exe` from the installation directory.
- Do not use COSYM installers to uninstall hotfix installer.

10 Troubleshooting

This chapter describes some useful troubleshooting hints which might be helpful while working with COSYM.

If you face any issues while installing COSYM, refer to `C:\ETAS\Lo-gFiles\COSYM\Logs\CosymInstall_`<Installation Date & Time>`.log` file for more details.

10.1 Error During Installation

If you get an error while installing COSYM due to "DirectX9" installation failure, then the error could be caused by the corrupted .NET framework on your system.

To fix the issue

1. Uninstall ".NET framework 4.6.1" application and re-install the same.
2. Install COSYM.

10.2 Error While Installing Or Uninstalling

If you get an error while installing or uninstalling COSYM as shown in the Fig. 10-1.

Fig. 10-1: Uninstallation error

It is due to that you do not have administrator rights in your system.

In such a case, change the 'local' to 'admin' account type.
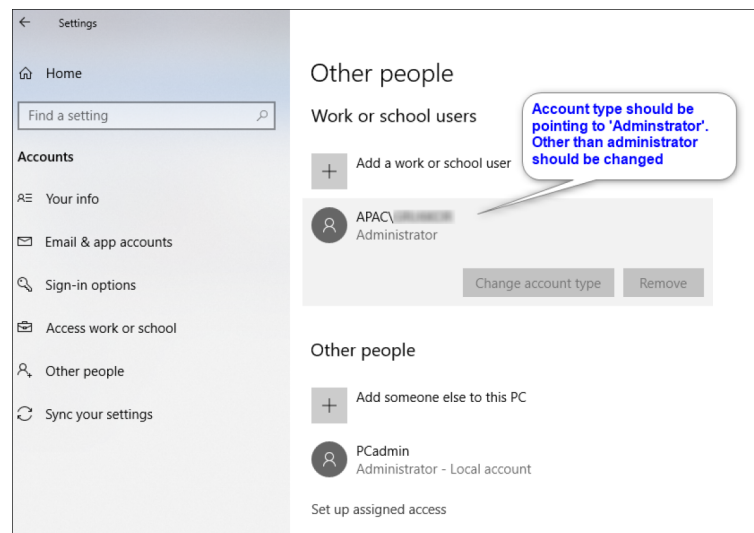
Fig. 10-2: Settings

10.3 Failing COSYM Installation when ETAS EE Installation Starts

On encountering an error during COSYM installation which is shown in the Fig. 10-3.
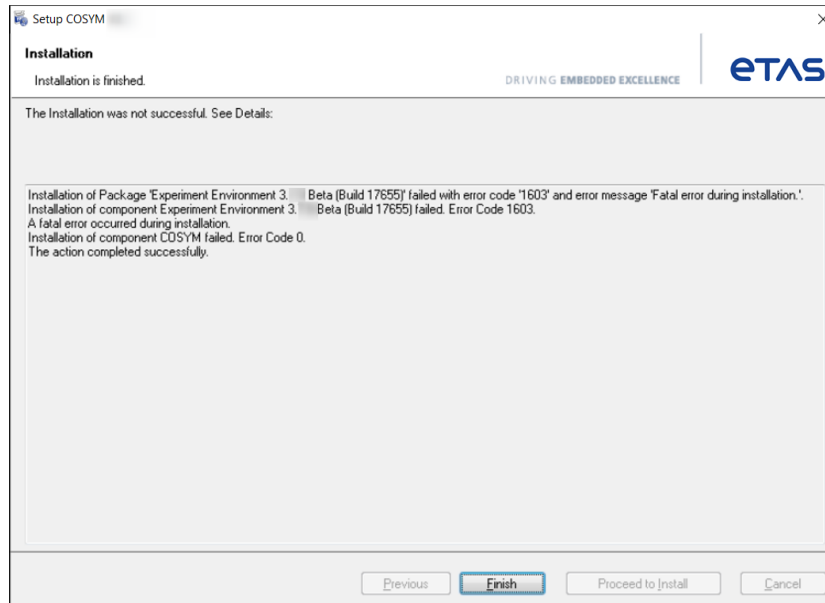

Fig. 10-3: Failure of COSYM installation

Due to this error, COSYM cannot be installed on the same machine without rectifying it.

This issue happens when the VC++ Redistributable file(s) is(are) corrupted.

Repair the VC++ Redistributables manually.

To fix the issue

1. Go to **Control Panel → Programs → Programs and Features**.
2. Select "Microsoft VC++ Redistributable" and right-click.
⇨ A context menu is displayed.
3. Click **Change**.
⇨ "Microsoft C++ Redistributable Modify Setup" dialog box is displayed.
4. Click **Repair**.
5. Click **Close** once the repair process is successful.
6. Restart the system.
7. Re-install COSYM.

10.4 Port Error While Launching

You might get this error in the following scenarios.

Scenario 1

If you are unable to launch COSYM after successful installation of COSYM as the port configured during installation is used by another application.

In such a case, change the configured port number of COSYM. Refer to "Port Used for COSYM" on page 29 on how to configure the port.

Scenario 2

Whenever COSYM starts, both PA and COSYM server java processes start. Sometimes, even if you close COSYM, one or both java processes could still be running. Hence you might get the "`port is in use`" error.

In such a case, go to **Task Manager** in your computer by right-clicking on the toolbar and search for `OpenJDK Platform binary.exe`. Then, right-click on the same and click **End task**.

10.5   Getting a Blank Screen After Launching COSYM

In general, when you start the COSYM, `cosym.exe` and `OpenJDK Platform binary.exe` should be available in the Task Manager.

In case, Task Manager contains only `cosym.exe` without the `OpenJDK Platform binary.exe` in the Task Manager after starting the COSYM, then you get a **blank** screen.

In such a case, you need to re-install ("Uninstalling" on page 40 and "Installing COSYM" on page 12) COSYM.

10.6   Getting White Background After Launching COSYM

Sometimes, you might get a white background after launching COSYM or invalid port error as shown in the Fig. 10-4 and Fig. 10-5.
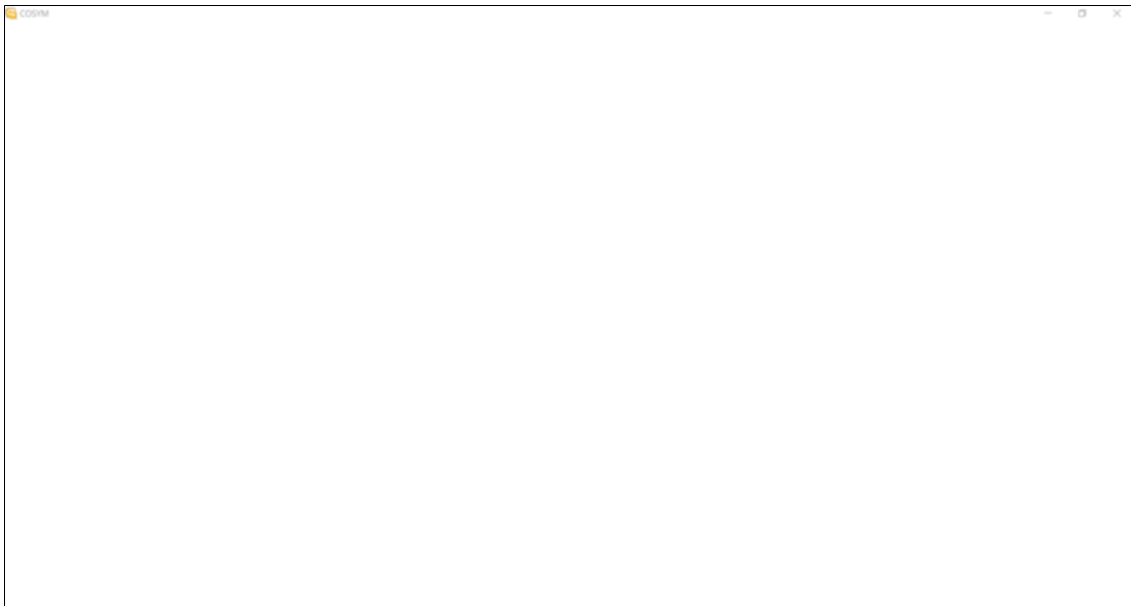

Fig. 10-4: A blank screen after launching COSYM
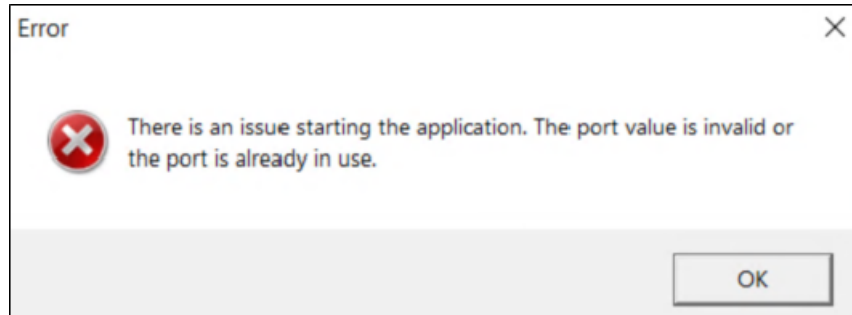
Fig. 10-5: Invalid port error

This could be because of the following reasons:

- — The executable file of CEF wrapper code (`<COSYM Installation location>\Short-cuts\executable\CefSharp.BrowserSubprocess.exe`) is missing.
- — The 'White screen' and the 'Port usage' issues are interlinked. The CEF Wrapper code is invoked first to initialize the port required for COSYM KARAF and launch of COSYM.
- — The missing executable is because of the anti-virus which was blocking the executable as it was listed as a Trojan. So this `*.exe` file was removed during scanning.

To resolve the issue

1. Check whether your system is restricted to download and save it to your system.
2. The removed `CefSharp.BrowserSubprocess.exe` file needs to be placed explicitly in the location, `<COSYM Installation location>\Short-cuts\executable\`.
3. Add the exemption in anti-virus settings for this particular executable file.
   ⇒ This file will be exempted from the anti-virus.

By adding the exemption in the anti-virus settings for this particular executable file, the issue will be resolved.

10.7   Application Error

If you get an error as shown in the Fig. 10-6, it is necessary to follow the steps below to fix the issue.

This error might occur when COSYM is launched from clean virtual machine. It is also due to missing or corrupted `MSVCP120.dll` file in the system.
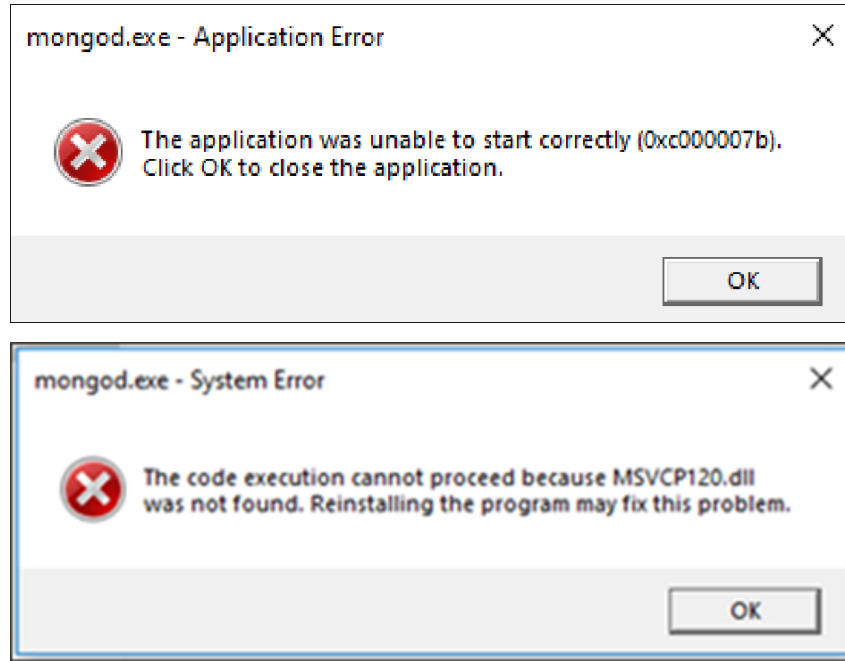
Fig. 10-6: An application error

In such a case, re-install the Visual Studio C++ redistributables for the `MSVCP120.dll` file from the location below. To perform this operation, you must have administrator privileges.

To re-install the Visual Studio C++ redistributables

1. Go to the location, "COSYM_DVD\DATA\COSYM_Install-ation\Packages\3rdParty\vcredist_2013_x64" and "COSYM_DVD\DATA\COSYM_Installation\Packages\3rdParty\vcredist_2013_x86_1".

2. Double-click on `*.exe` files to run.

3. Install/repair the Visual Studio C++ redistributable version 2013 x64 and x86.

(i) **Note**

After installation of these packages, it is necessary to restart your system.

If the problem still persists, then exit and restart the ETAS Simulation Deployment Service.

10.8 Installation Failure due to COSYM_SIM Module

You might get an error as shown in the Fig. 10-7 where you asked to refer to the COSYM Installation log files (page 36).
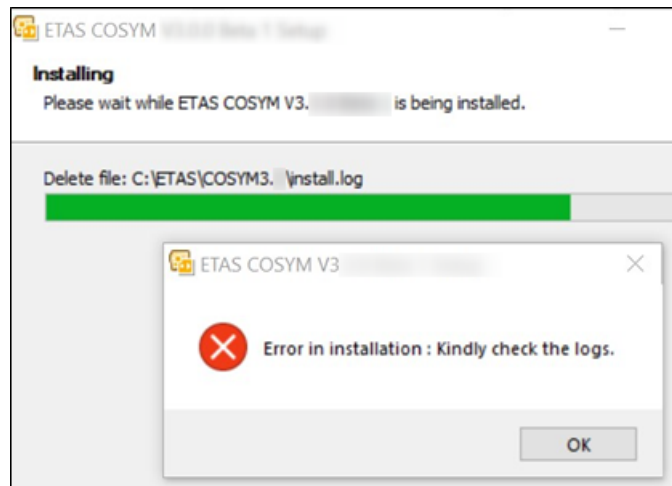
Fig. 10-7: Error while installing

It is mentioned in the log file as "`Installation issue in COSYM_SIM`" as shown in the Fig. 10-8.

```
63548   File: overwriteflag=1, allowskipfilesflag=2,
        name="C:\Users\          \AppData\Local\Temp\nsiCC1F.tmp\nsExec.dll"
63549   File: wrote 7168 to "C:\Users\          \AppData\Local\Temp\nsiCC1F.tmp\nsExec.dll"
63550   settings logging to 1
63551   logging set to 1
63552   Issue while installing COSYM_SIM with error code 1
63553   CopyFiles
        "C:\ETAS\COSYM3.0\install.log"->"C:\ETAS\LogFiles\COSYM\Logs\CosymInstall_2021-09-14-18-54-16.log"
```

Fig. 10-8: Error snippet from the log file

This issue could be because of the registry – "`HKCU\Soft-ware\Microsoft\Command Processor`". The AutoRun key has values (in this scenario, "Conda" installation is blocking the installation of COSYM as shown in the Fig. 10-9).
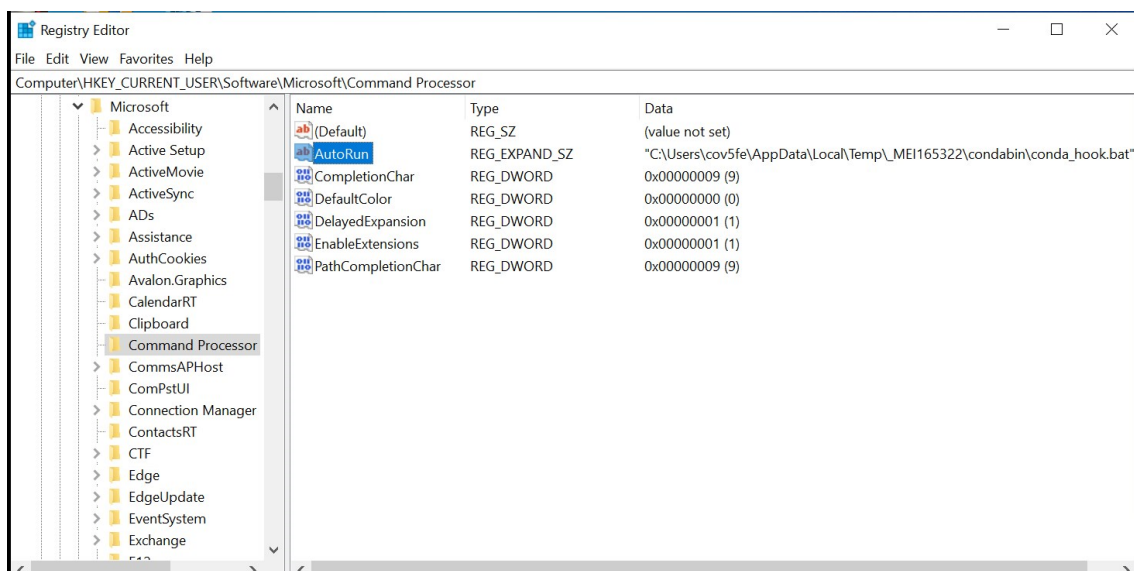
Fig. 10-9: Conda installation is blocking COSYM installation

To overcome this issue, follow the steps below:

<u>To reset the registry</u>

1. Go to "Registry Editor" from **Windows Start** menu.

2. Navigate to `Computer\HKEY_CURRENT_USER\SOFTWARE\Microsoft`.

3. Right-click on the registry, "Command Processor".

⇒ A context menu is displayed.

4. Click **Export** to keep this as a backup.
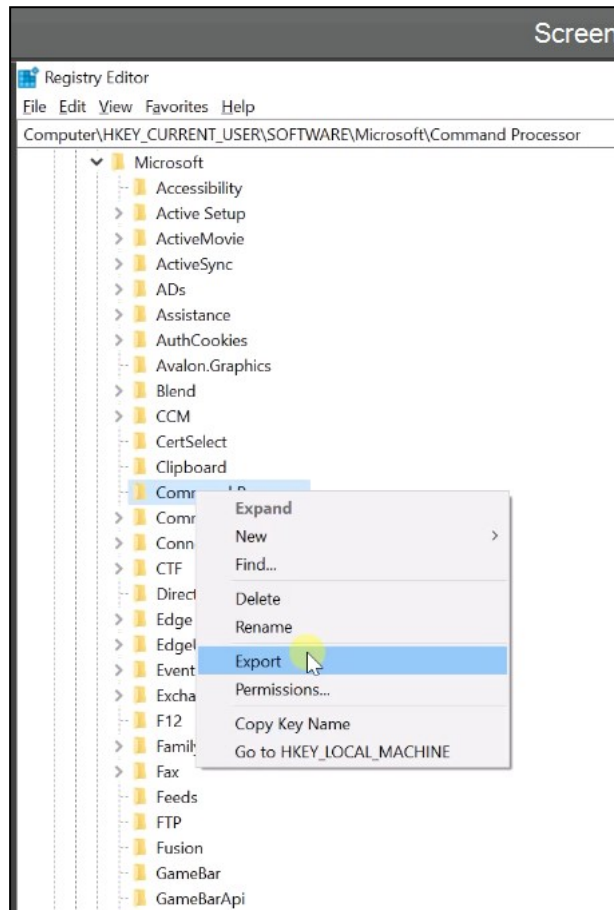
5. Click **Delete** to delete the registry.

Fig. 10-10: Export/Delete the registry

6. Restart PC.

7. Install COSYM.

8. Once COSYM is installed, right-click on the exported registry file that was previously backed up and click **Merge**.

⇒ This will reset back the registry. Ensure that it is reset back to the original condition.

11   Restrictions

This chapter describes the limitations of COSYM V3.4.1.

11.1   Parallel Installation

COSYMV3.4.1 cannot be installed in parallel with the lower version of COSYM on the same PC. Uninstall, if any version of COSYM installed in your system before installing V3.4.1.

11   Contact Information

Technical Support

For details of your local sales office as well as your local technical support team and product hotlines, take a look at the ETAS website:

www.etas.com/hotlines

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Glossary

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COSYM

Co-simulation of Systems

CPU

Central Processing Unit

D

DVD

Digital Versatile Disc

E

EULA

End-User License Agreement

F

FMI

Functional Mockup Interface

FMU

Model is converted to ".fmu" file with the help of importer. This ".fmu" file is called as Functional Mockup Unit (FMU).

G

GB

Giga Byte

GHz

Giga Hertz

I

ID

IDentification String

IP

Internet Protocol

P

PC

Personal Computer (Desktop or Laptop)

R

RAM

Random Access Memory

REST

REpresentational State Transfer

ROM

Read Only Memory

U

URI

Uniform Resource Identifier

URL

Uniform Resource Locator

Figures