Version: **0.6.3 Pre-Alpha**

CETC International Co., Ltd.

Visual Integrated Development Platform

User Manual

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1. VIDE Overview

Visual Integrated Development Environment is a software for running the dynamical libraries performing any tasks specifying by an user. The VIDE can run the dynamical libraries (components) as on the personal computer or another device as well as in computer networks. The software provides convenient tools for the components management, design of systems of the components, visualisation the systems of components in a suitable way for end-user.

The components can be developed by any third-party developer and contain any desired functionality. The VIDE provides possibilities to create a functioning system to resolve any complex tasks. The power and capacity of the system theoretically unlimited. It can consist of as many computers or devices as the user needs for the task to be resolved. The only limitation is the current level of the most advanced computers in the world.

The VIDE may be used for any task needed for distributed management of:

- computer networks,
- radar systems,
- lidar and other complex optical systems,
- satellite systems,
- microwave communication systems,
- smart city,
- internet of things,
- *and many other fields needed for distributed management.*

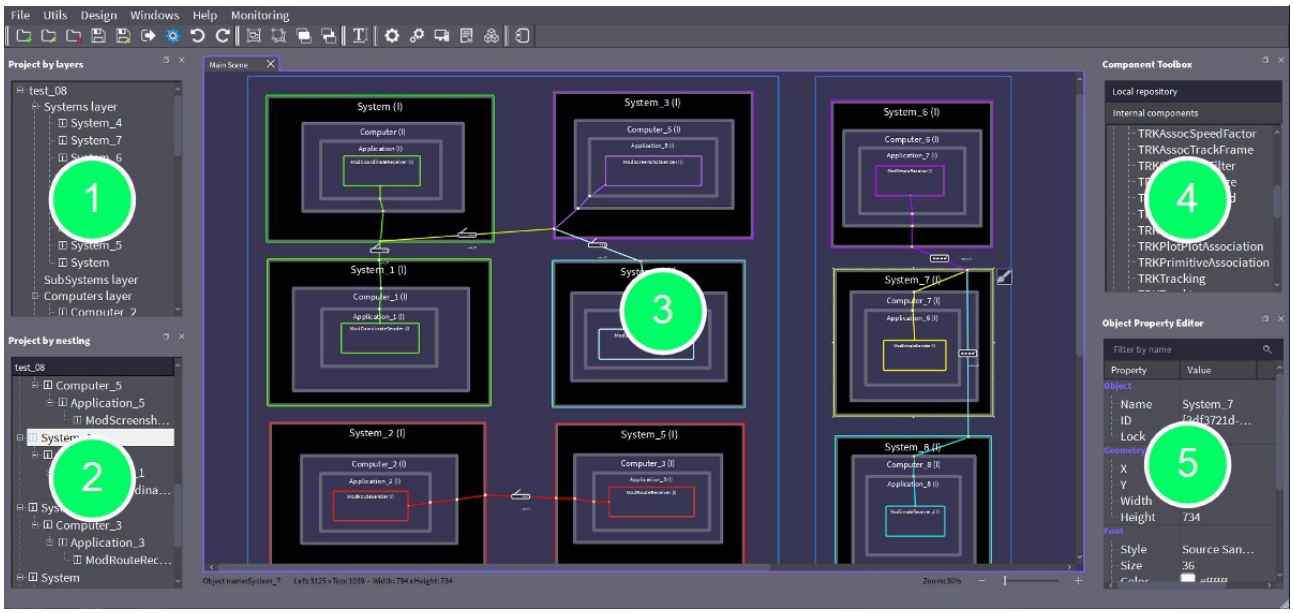


Figure 1. VIDE Interface Overview

1 – Project by layers (3.7.1)

2 – Project by nesting (3.7.2)

3 – Project scene (3.2)

4 – Component Toolbox (3.8)

5 – Object Property Editor (3.9)

1.1. What You Can Do

General possibilities:

► Design a system of dynamical libraries

♦ Set communications of different types between the components

♦ Define a hierarchy of a system in a suitable and comfortable for quick analysis and modifying

♦ Easy modifying of the system according to your needs and purposes

♦ Large possibilities for different style design of the items in the system

♦ Different modes of the view of system items

// Deploy, Monitoring, Update, Upload (are currently being implemented)

1.2. Operation Systems VIDE works under

The VIDE works as on the computers under Linux and Windows as well as on the any Devices under VxWorks.

2. Quick Guide

2.1. Component's Development

To use the VIDE Software, you should have the components to design the system. The components are dynamical link libraries. The VIDE supports following extensions of the Components:

- *.dll*
- *.so*
- *.o*

The components are prepared by the developers using corresponding software to implement the necessary functionality. The user can develop the components on himself or acquire the components from a third-party developer.

2.2. Component's Uploading to the Repository

When the components for the system design are ready, you should upload them in the folder for the components storing (the Repository). Then the components will appear in the Component Toolbox of the VIDE.

2.3. Creating a Project

2.3.1. Create a Project

The project is a single file which stores the system design. The projects in the VIDE has *.dspl* extension.

If the set of components is ready, you can start to create a project for system design.

The following sequence of actions is for the creation of project:

#	Action	Result
1	Launch the VIDE.	The VIDE is launched. Start screen is displayed.
2	Click on the **New project** button on the Start screen.	A **New Project** dialog window appears.
3	Enter a Project name and path to the Project folder in a corresponding fields, then click "Create project".	The Project scene appears.

2.3.1.1. Creating the Project Using Main Menu

If you already have created the project using algorithm above, you can also create a new project using **Main Menu**. To do this, select a **File** option of the **Main Menu** and then selects a **New Project** option in the **File** menu appeared. The next step is the same with the step #3 of the sequence described in 2.3.1. Create a Project section of the Manual.

2.3.2. Add and Modify Elements

The element (or the item) is an entity can be placed on the project scene. To do this, drag & drop element from the Element Section in Menu Toolbar.

Figure 2.3.2. Element Section in Menu Toolbar

There are five types (levels) of entities in the VIDE:

- Component,
- Application,
- Computer,
- Subsystem,
- System

► The component is a dynamic link library with the extensions *.dll*, *.o* or *.so*. The components linked with each other by defined types of communications (transmission protocols, serialization methods). The component may be External or Internal.

♦ Internal component is a component designed by the user to deploy

♦ External component is a component designed by an external user and is not to be deployed

► The application is the executable program which runs the components.

► The computer is a machine on which components are running.

► The subsystem is a group of computers with running components. The subsystem can correspond to a computer network. The subsystem element is the only optional element of the project. All other elements are necessary to be set on the project scene.

► The system is a group of subsystems. The system can correspond to a computer network or a group of computer networks. The System may be External or Internal.

♦ Internal system is a system designed by the user to deploy

♦ External system is a system designed by an external user and is not to be deployed

The component is an element of the lower level, the system is an element of the higher level.

All elements except system and subsystem are physical entities (computer -> hardware the user has, application -> predefined executable program in VIDE for run the components, component -> dynamic link library). The user specifies system and subsystem on himself.

The elements on the project scene is linked by connectors.

The elements is located on the project scene of the VIDE. Project scene is the main workplace to design a system desired by the User.

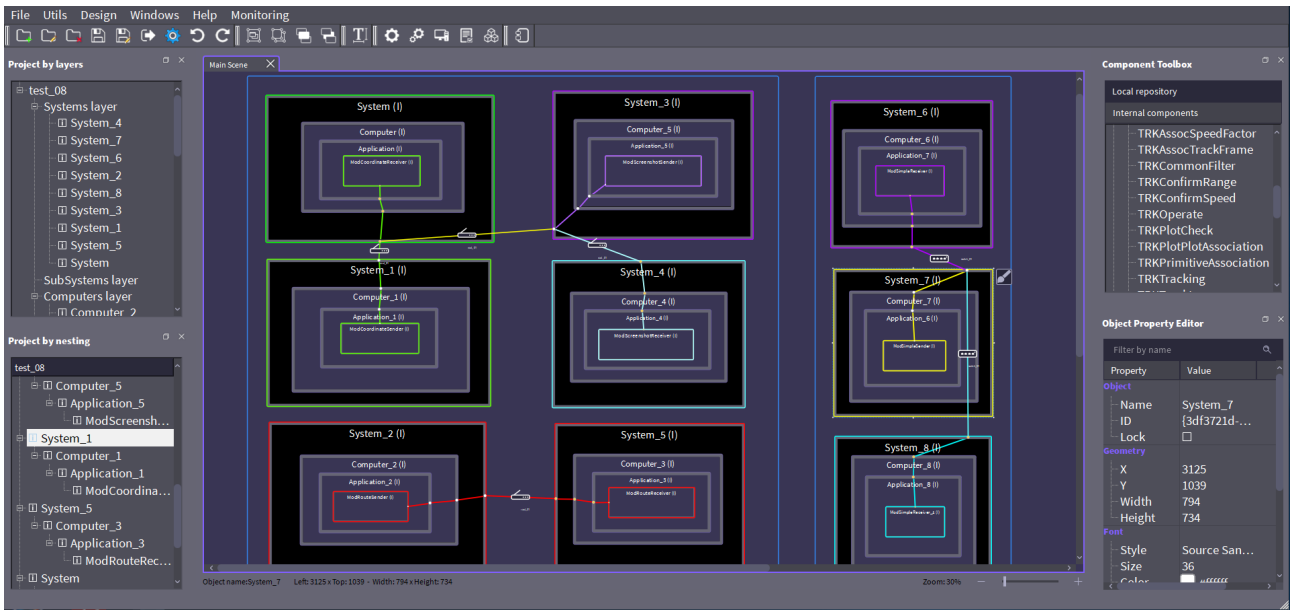


Figure 2.3.2. The Project designed in the VIDE.

2.3.2.1. Add the Element (Component, Application, Computer, Subsystem, System)

You can add components, applications, computers, subsystems and systems to the project scene from the **Menu Toolbar**. The elements is added by drag & drop from the **Menu Toolbar**. Then the elements appear on the project scene.

To build the configuration of the system, firstly drag&drop the system element to the **Project Scene**. The system element includes subsystem(s), the subsystem includes computer(s), the computer include application(s), the application include(s) component. All configuration levels are necessary to be specified except subsystem. The subsystem level is optional.

2.3.2.2. Move the Element

You can move the element on the project scene to get the desired disposal of elements of any level. The element is moved by the mouse. An element is moved by holding the mouse on it and then dragging it.

2.3.2.3. Delete the Element

You can delete the element from the project scene. To do this,

1) select the element by the left mouse-click

2) press delete on a keyboard

OR

1) click on the element by the left mouse-click

2) select the **Delete** option

2.2.3.4. Resize the Element

You can resize the element on the **Project Scene**. To do this,

1) select the element

2) click on the one of the point on the boundary of an element, hold this point

3) drag the boundary by a mouse to set a desired size and shape of the element

On the Figure, the SubSystem_1 element is being resized.

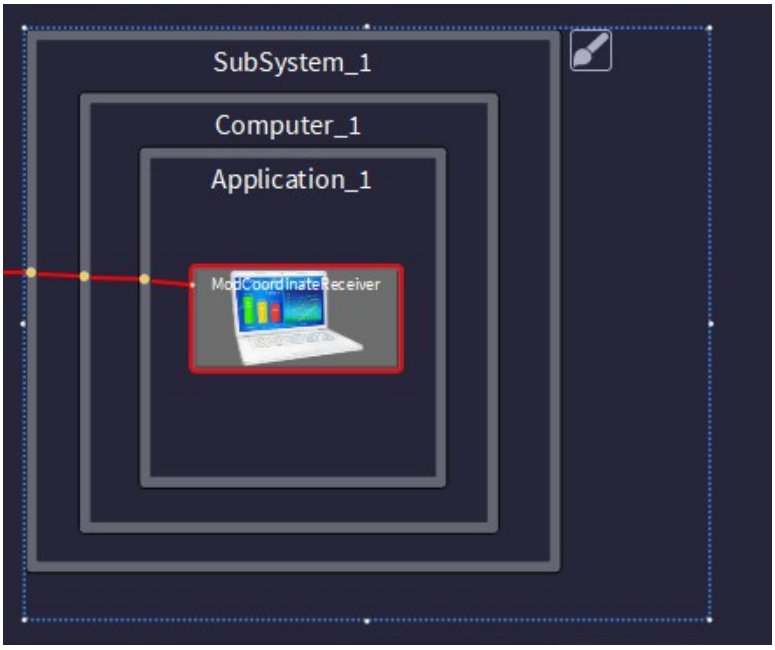


Figure 2.2.3.4. The SubSystem_1 element is being resized.

2.3.2.5. Change a Style of Element

You can change a style of element's font, background and boundary.

2.3.2.5.1. Change a Style of Font

To change the style of font, select an element on the Project Scene by the mouse left-click, select the up-right-corner button appearing and select the [T] button. An **Graphic Element Bar** appearing. A window with list of font types and styles is appeared. Specify desired font size, type and style, then clicks **OK**.

Figure 2.3.2.5.1.1. Graphic Elements Bar button

Figure 2.3.2.5.1.2. Graphic Elements Bar

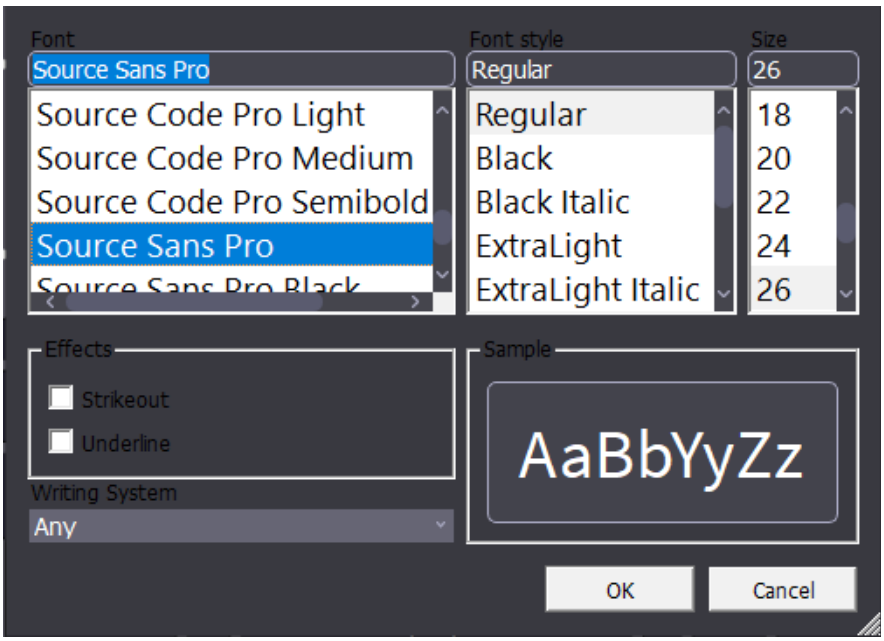


Figure 2.3.2.5.1.3. Select Font Window

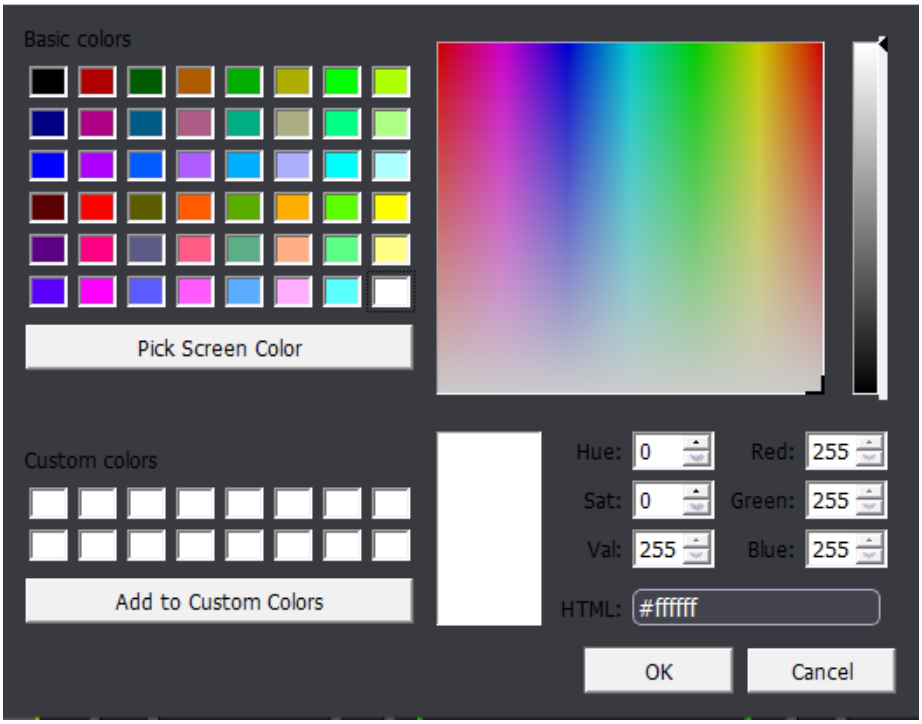


Figure 2.3.2.5.1.4. Select Font Colour Window

Also, you can change a colour of font. To do this, click on the [A] button of the **Graphic Element Bar**, then specify the colour of font and click **OK**.

2.3.2.5.2. Change a Style of Background

You can change a colour of element's background. To do this, click on the [Gouache Jar] button of the **Graphic Element Bar**, then specify the colour of background and click **OK**.

2.3.2.5.3. Change a Style of Boundary

You can change a colour of element's boundary. To do this, click on the [+] button of the **Graphic Element Bar**, then specify the colour of boundary and click **OK**.

2.3.2.5.4. Swith an Element View From a Shape to an Image and Otherwise

You can switch the element view from the shape to the image. To do this, click on the element by the right mouse-click, select a **Set Image** option in a pop-up appearing, then select the image and confirms by clicking on the **Set Image** button. The view of element is changed from the shape to the image selected.

Afterwards, you can switch the view of element from the image to the shape (rectangle). To do this, click on the element by the right mouse-click, select the **Set Image** option in pop-up menu appearing, then click on the **Reset Image** button. The view of element is changed from the image to the shape backwards.

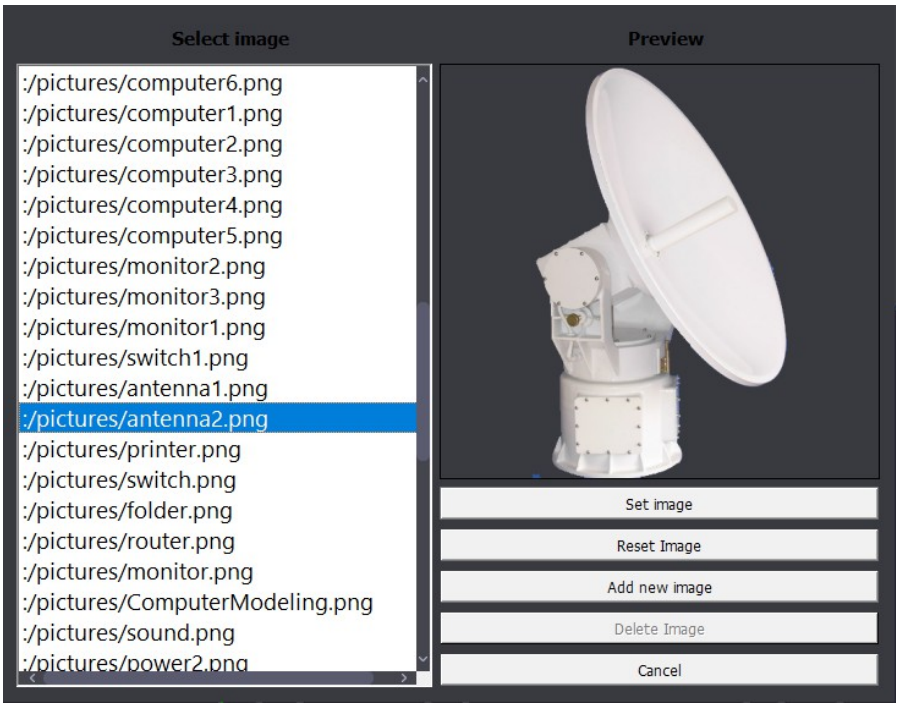


Figure 2.3.2.5.4. Change Element View Window.

2.3.2.6. See Attributes of an Element

You can see the attributes of element. To do this, double-click on the element on the project scene. The attributes are the information about element. The following elements have the attributes:

- application,
- computer,

- subsystem,
- system.

The attributes of an element are the following:

- Name
- ID
- Components included
- Messages received and sent through the element

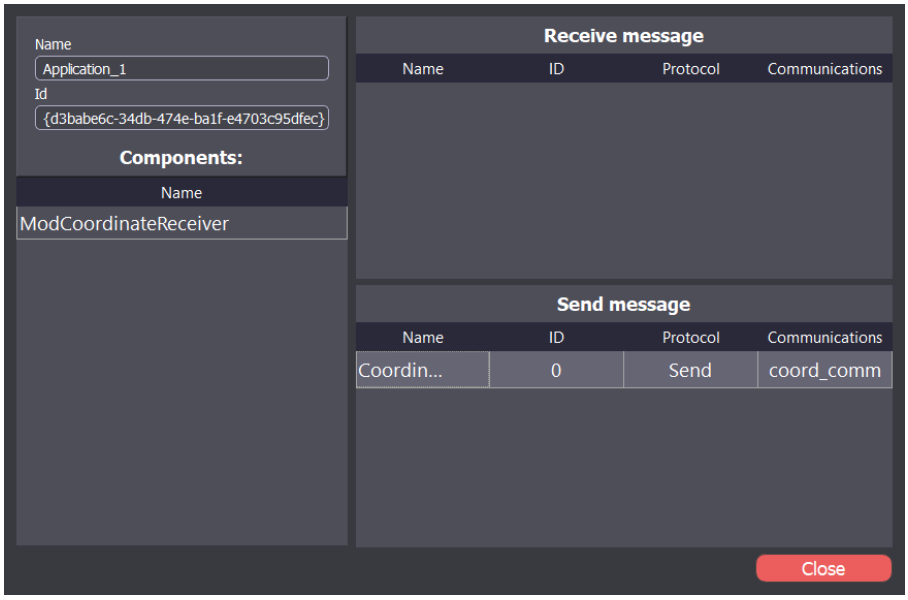


Figure 2.3.2.6. An Element Attributes Window.

2.3.3. Create Communication Types

2.3.3.1. Communication Types in VIDE

To perform your tasks, the components may need to perform message exchange. After you place the elements of system on the project scene, you should define the connections between components in the system for the message delivering.

Components can exchange messages. Message is a signal to another component to perform some operation or information for necessary purpose. The **Sender** component sends the message to the **Receiver** component. The **Receiver** component perform the operation or another action according the message. The messages can be configured inside the component during its development.

The messages are transmitted between the components through defined types of communications. The type of communication is defined by the user. The user defines the following attributes of communication:

► Device Type

- ♦ General type
- ♦ Switch
- ♦ Router
- ♦ Serial port
- ♦ Cloud
- ♦ Share memory
- ♦ Radio device

► Device Name

► Communication Name

► ID (Communication ID)

► Method

► Sender (of) IP:Port

► Receiver (of) IP:Port

► Fragment

● **Device Type** is a type of device through which communication passes.

● **Device Name** is a name of device.

● **Communication Name** is recommended to decribe the purpose of usage of communication, for example *router_comm*.

● **ID** (Communication ID) is an identification number of communication. The Communication ID is assigned automatically by the VIDE and numbered in order.

● **Method** is the data transfer method between the components. There are two methods in the VIDE: TCP and UDP.

● **Sender (of) IP:Port** is an attribute to specify IP adress and Port from which the Sender component sends the message.

● **Receiver (of) IP:Port** is an attribute to specify **IP adress** and **Port** in which the **Receiver** component receives the message.

● **Fragment** is an attribute to specify if we need to split a package to transmit. If the package size transmitted through communication has the size more than 8192 bytes, the

fragment checkbox is recommended to be checked. This way, the package will be splitted and transmitted by parts. This way increases reliability of the data transmission.

2.3.3.2. Specify the Communication Type

To connect components in the system designed, you should specify communication types of the connections. There are different types of communications possible.

To specify the communication type of connection, click double on the **Communications** field of the **Project Toolbox** (**Project by layers** or **Project by nesting**) left of the **Project Scene**. The **Communications window** appears. In the **Communications window** appeared click on the **Add new** button. After the row is appeared in the window,

1) specify the **Device Type** and **Method** in corresponding columns,

2) enter **Device Name**, **Communication Name**, **IP Adresses** and **Ports** of the **Sender** component and **Receiver** component in corresponding columns,

3) check the **Fragment** checkbox in a corresponding column if necessary,

4) click **Close** button.

The communication type has been successfully created.

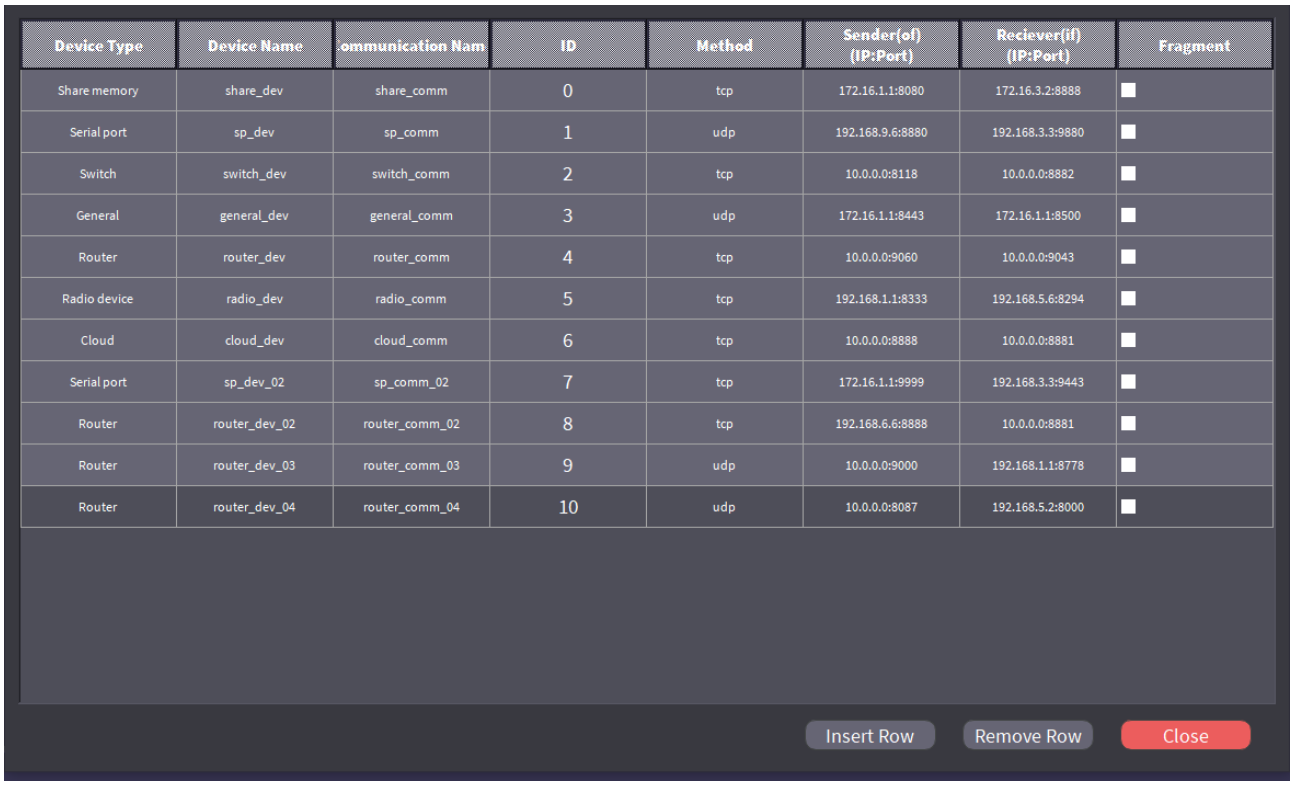


Figure 2.3.3.2. Specify Communication Type in Communications Window

2.3.4. Configure Messages

2.3.4.1. Messages in VIDE

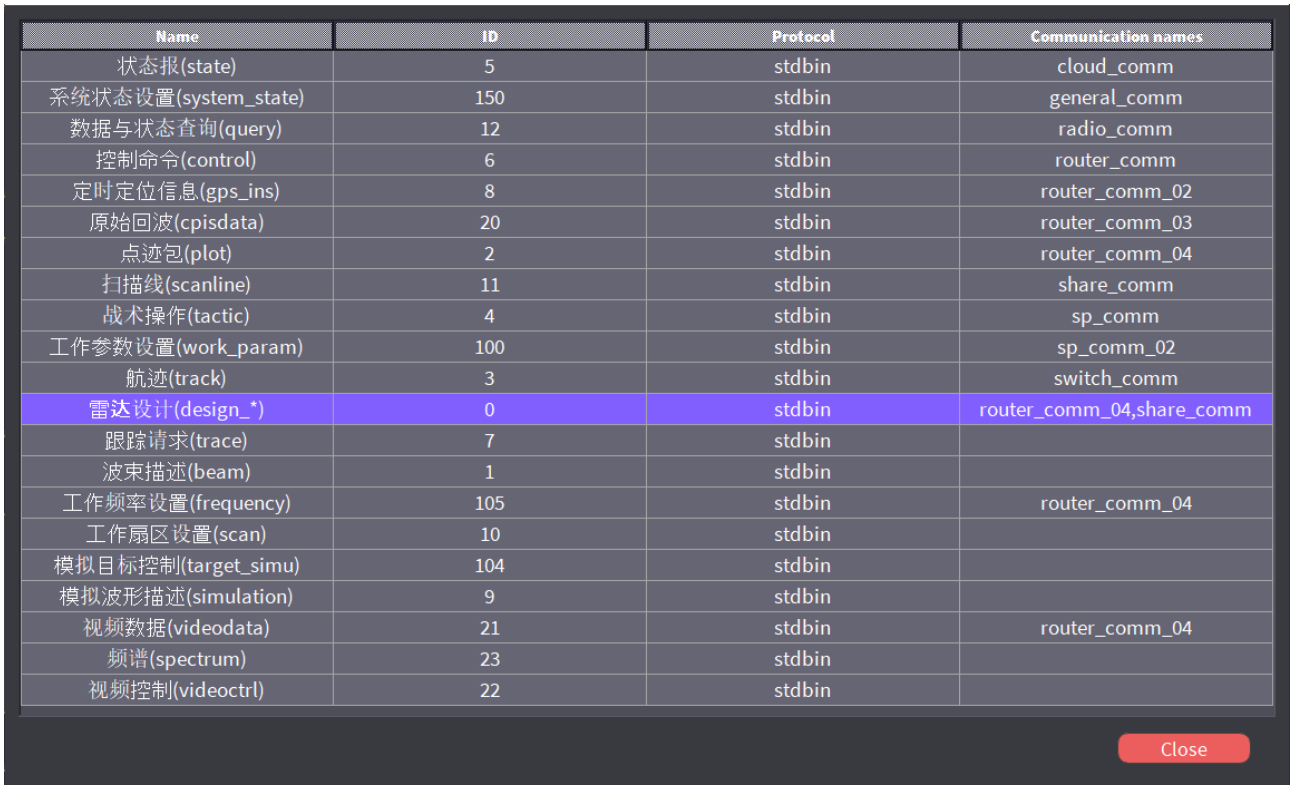
The attributes of the message in VIDE are the following:

- Name
- ID (Message ID)
- Protocol (Serialization Method)
- Communication Names

The Name is a short title of a message. It is recommended that the Name describes a purpose of message.

ID is an identification number of message. Message ID is assigned by a developer of component.

2.3.4.2. Assign the Communication Type to a Message



Name	ID	Protocol	Communication names
状态报(state)	5	stdbin	cloud_comm
系统状态设置(system_state)	150	stdbin	general_comm
数据与状态查询(query)	12	stdbin	radio_comm
控制命令(control)	6	stdbin	router_comm
定时定位信息(gps_ins)	8	stdbin	router_comm_02
原始回波(cpisdata)	20	stdbin	router_comm_03
点迹包(plot)	2	stdbin	router_comm_04
扫描线(scanline)	11	stdbin	share_comm
战术操作(tactic)	4	stdbin	sp_comm
工作参数设置(work_param)	100	stdbin	sp_comm_02
航迹(track)	3	stdbin	switch_comm
雷达设计(design_*)	0	stdbin	router_comm_04,share_comm
跟踪请求(trace)	7	stdbin	
波束描述(beam)	1	stdbin	
工作频率设置(frequency)	105	stdbin	router_comm_04
工作扇区设置(scan)	10	stdbin	
模拟目标控制(target_simu)	104	stdbin	
模拟波形描述(simulation)	9	stdbin	
视频数据(videodata)	21	stdbin	router_comm_04
频谱(spectrum)	23	stdbin	
视频控制(videoctrl)	22	stdbin	

Close

Figure 2.3.4.2. Communication Type of Message Window.

After you have created the communication, you should specify messages that is intended to be transmitted through this communication between the components. To do this, click double on the **Messages** row of the **Project Hierarchy Toolboxes** left of the **Project Scene (Project by layers** or **Projects by nesting)**. The **Messages** window appears. The window contains a list of all messages the components of system have. In the **Messages** window, assign communication type to the messages may be transmitted through this communication type. To do this, click on a cell corresponding to the message in

Communication Names column. Then, check a checkbox in a window with list of all communications in the system and click on the **Save** button. The communication is assigned to the message successfully.

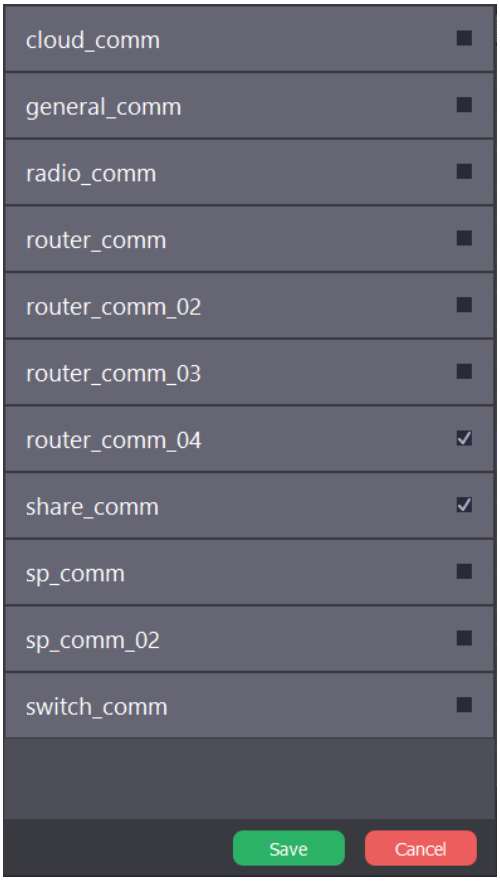


Figure 2.3.4.2. Assign Messages to Communication.

2.3.4. Add Connections Between Components

To create a connection between communications, click on the component you need to connect with another one. A **Create Connection** window appears with the list of connections the component already has. If the component has no connectors, the list will be empty. Then click on the **Configure new** button. The window with a list of messages may be transmitted between components appears. Select the message and click on **Config** button. Then a window with list of possible communications and components to connect with is appeared. Then check the checkboxes of necessary communication type and component to connect with, then click **OK**. Then the connector is appeared on the project scene. The components are connected and may transmit messages.

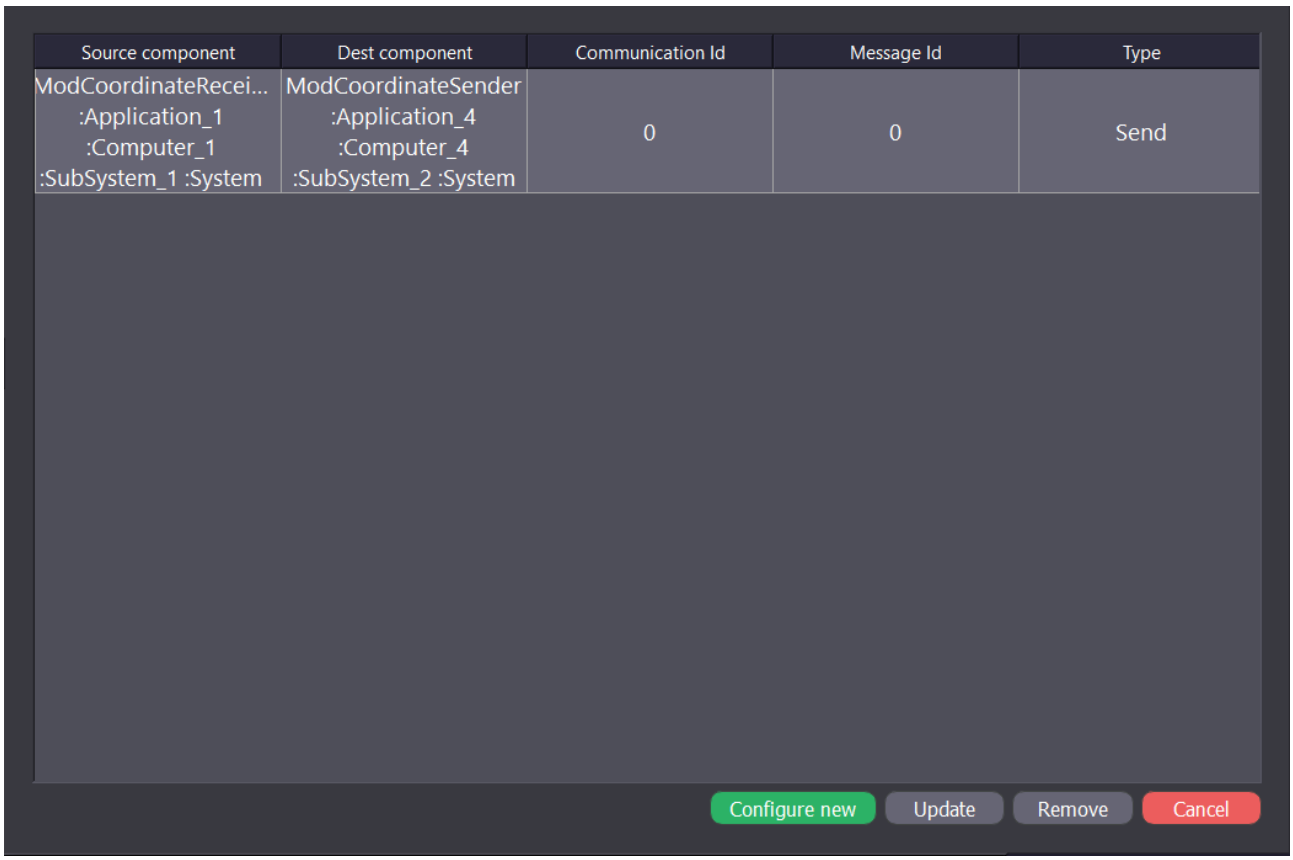


Figure 2.3.4.1. Create Connection Window

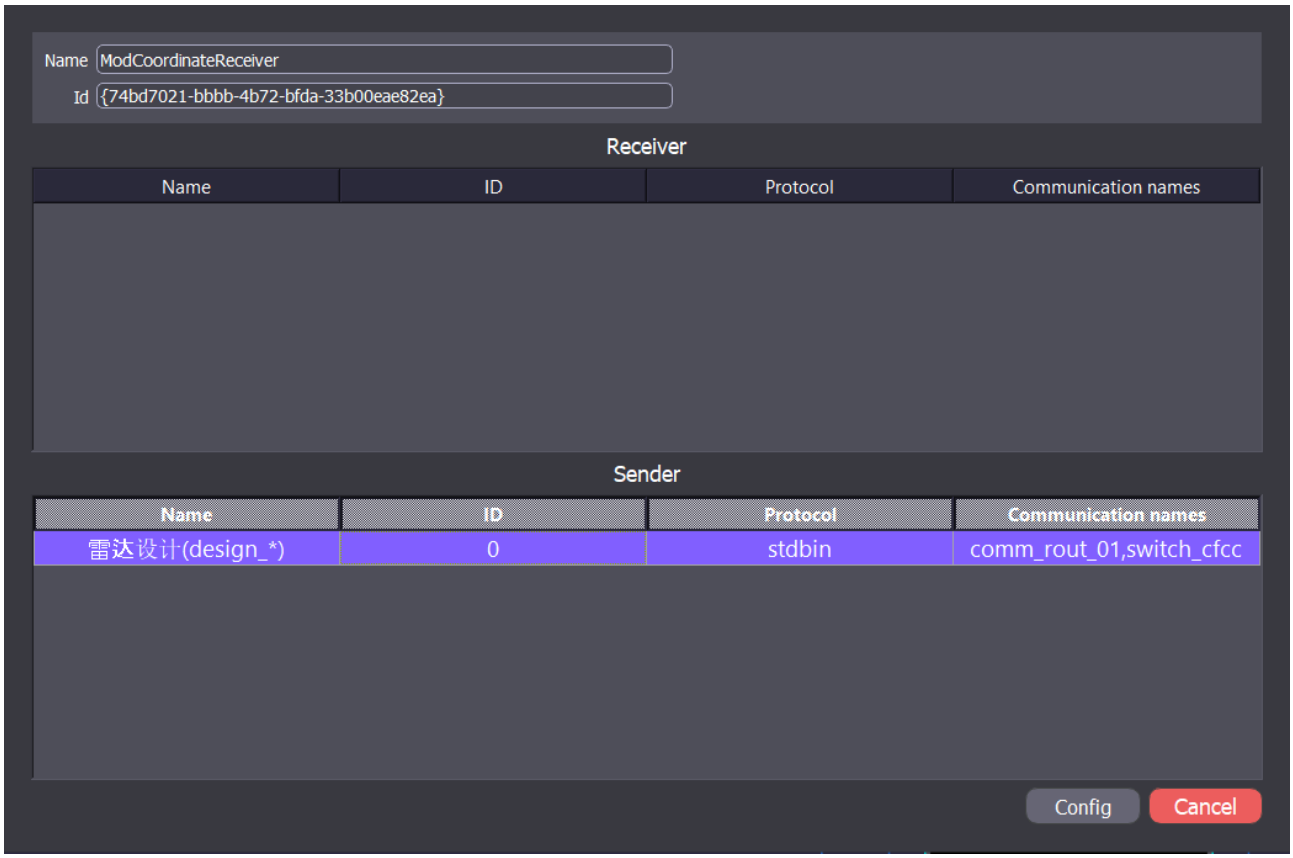


Figure 2.3.4.1. Connection Configuration Window

2.3.4.1. Customize Connetion View

2.3.4.1.1. Change a Colour of a Part of Connection

You can change the colour of connection. To do this, click on the part of connection between circles inside element boundaries and select an icon with jar of gouache. The window with possible connection colours appears. Then select the colour and confirms the selection by clicking **OK** button. The part of connection will change its colour.

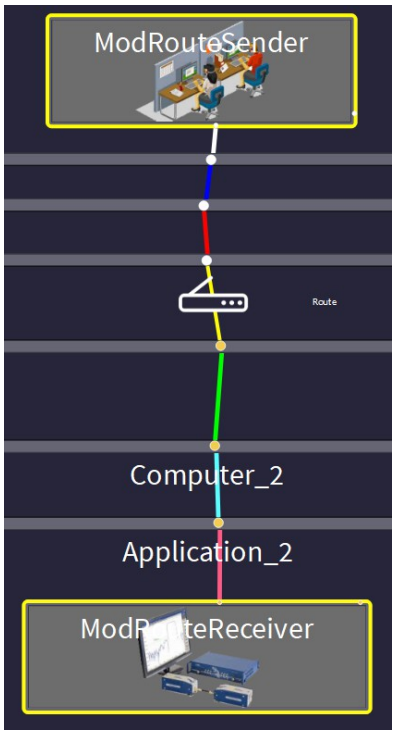


Figure 2.3.4.1.1. Connection with changed colours.

2.3.4.1.2. Change a Width of Connection

You can change the width of connection. To do this, click on the connection between circles inside element boundaries and adjust a **Mini Scroll**.

Figure 2.3.4.1.2.1. Mini Scroll in Graphic Elements Bar.

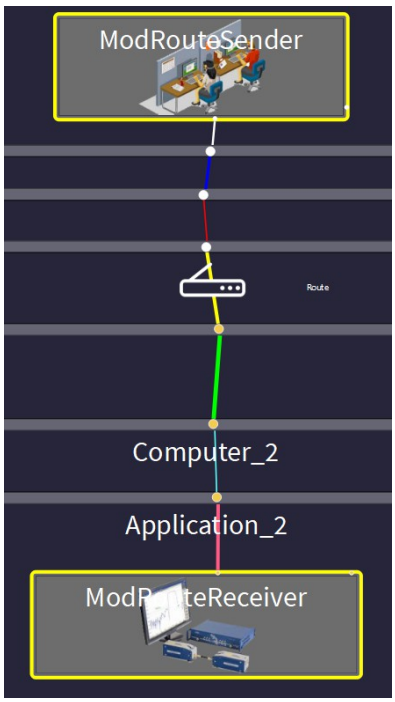


Figure 2.3.4.1.2.2. Connection with changed widthes.

2.3.4.3. Hide a Connection

You can hide a connection. To do this, click on the part of connection between two entry points of different elements (for example, computer and subsystem) and select a **Hide** option in pop-up menu appearing. The connection between two entry points becomes invisible.

2.3.4.4. Remove Connection Between Components

// To add when it will be implemented

2.3.5. Add Lines

2.3.5.1. Add Straight Line

You can link elements of the same type by the line. The line is not the same as connection. The line is just symbolic notion of some link between elements without any influence to the system configuration and system functioning.

To add straight line, click in the space of element containing two elements of the same type by the right mouse-click, then select a **Straight Line** option in pop-up window appeared. Then the click in the space of element you need to link with another one, hold the mouse and drag cursor in the space of another element. **Straight Line** is appeared.

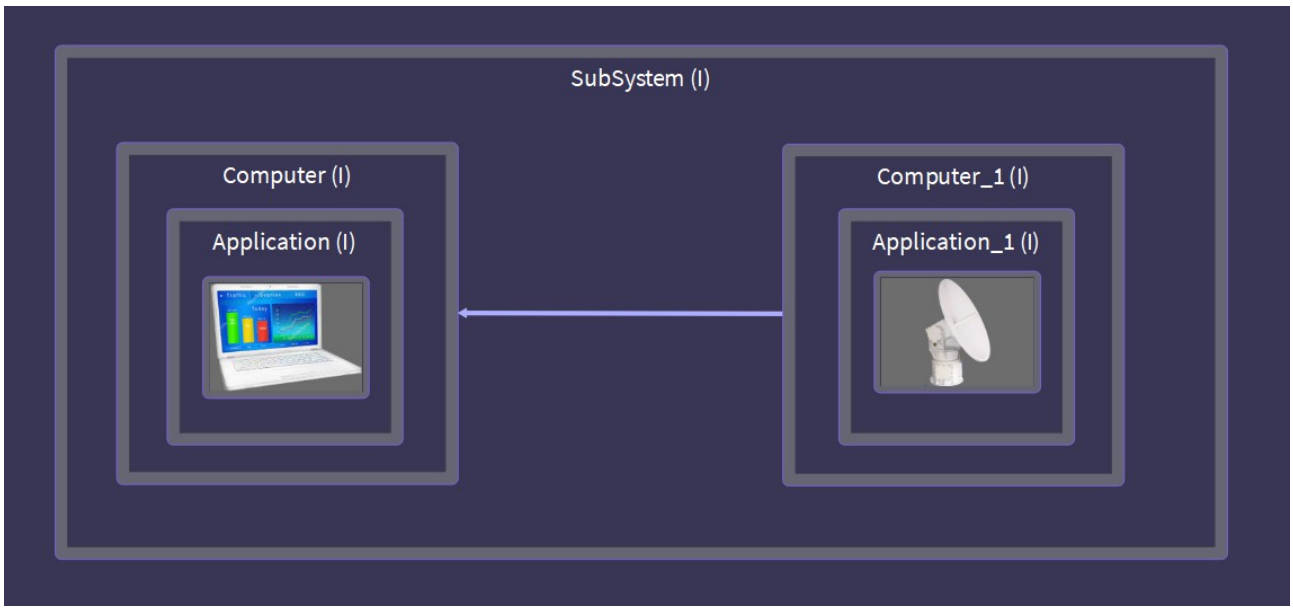


Figure 2.3.5.1. Straight line between two computers in subsystem.

2.3.5.2. Add Custom Line

You can link elements of the same type also by the line of custom form. To do this, click in the space of element containing two elements of the same type by the right mouse-click, then select a **Custom Line** option in pop-up window appeared. Then click in the space of element you need to link with another one, hold the mouse and drag cursor in the space of another element. Straight Line is appeared.

You can assign a custom look to this line. To do this, hold **Shift** button and click on the line where you want to place a point by dragging which the straight line will transform to a polygonal form. You can place any amount of points to any place of the line.

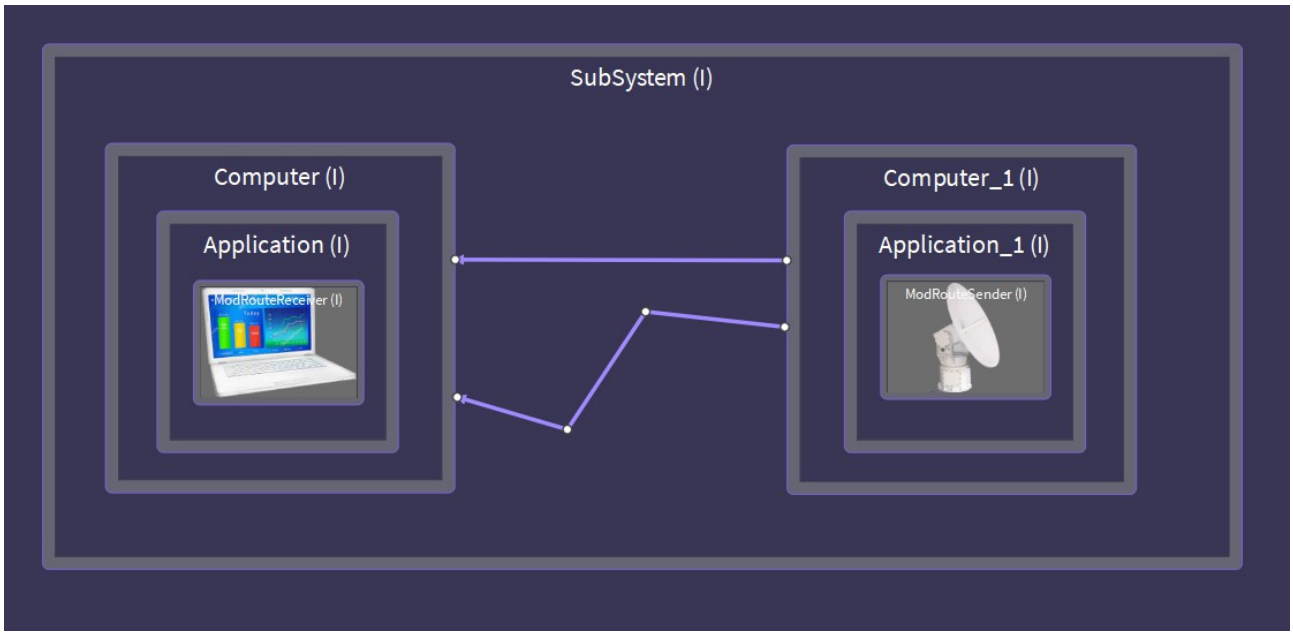


Figure 2.3.5.2. Straight line and custom line.

2.3.5.3. Customize Line View

2.3.5.3.1. Change a Colour of Line

You can change the colour of line. To do this, right click on the line and select an icon with jar of gouache. The window with possible line colours appears. Then select the colour and confirm the selection by clicking **OK** button.

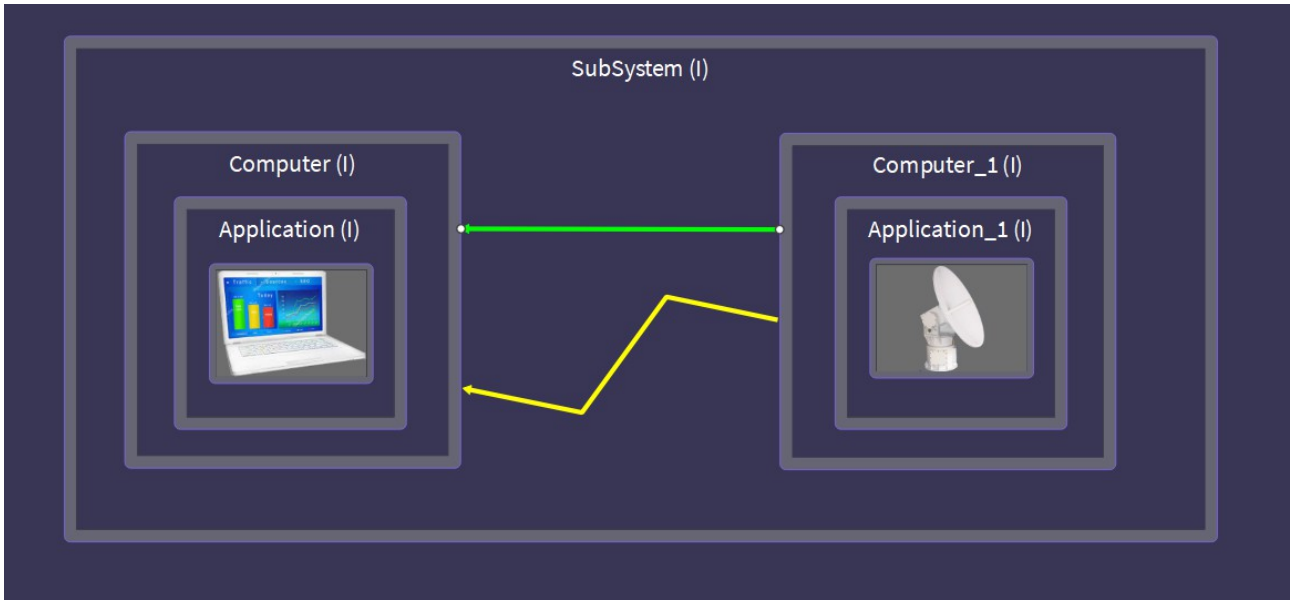


Figure 2.3.5.3.1. Straight line and custom line with changed colours.

2.3.5.3.2. Change a Width of Line

You can change the width of line. To do this, right click on the line and adjust the Mini Scroll Bar.

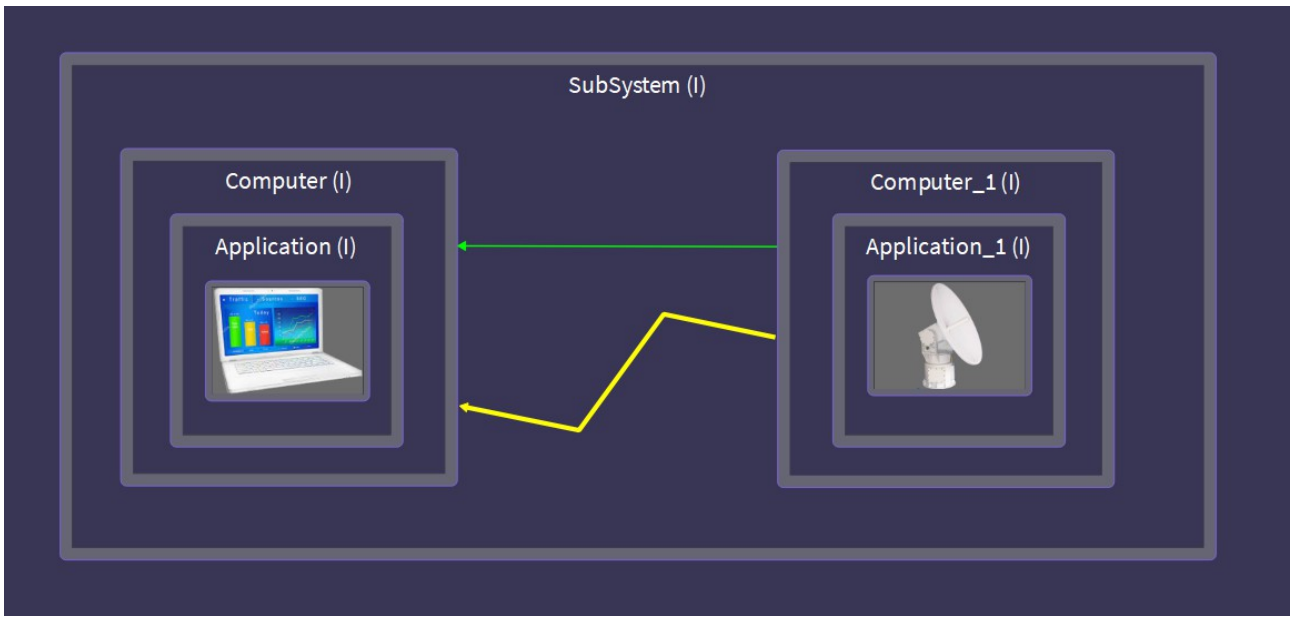


Figure 2.3.5.3.2. Straight line and custom line with changed widths.

2.3.5.3.3. Change a Line Form

To change the line form, click on the line by the right mouse-click and select **Line Style** option in the pop-up window appears. The you can change the form of line from straight to custom and otherwise by selecting a corresponding options.

2.3.5.3.4. Change a Line Direction

To change the line direction, click on the line by the right mouse-click and selects **Change Direction** option in the pop-up window appears. You can change the direction of line. The following types of directions are in the system:

- Direct
- Reverse
- Bi-directional
- No directions

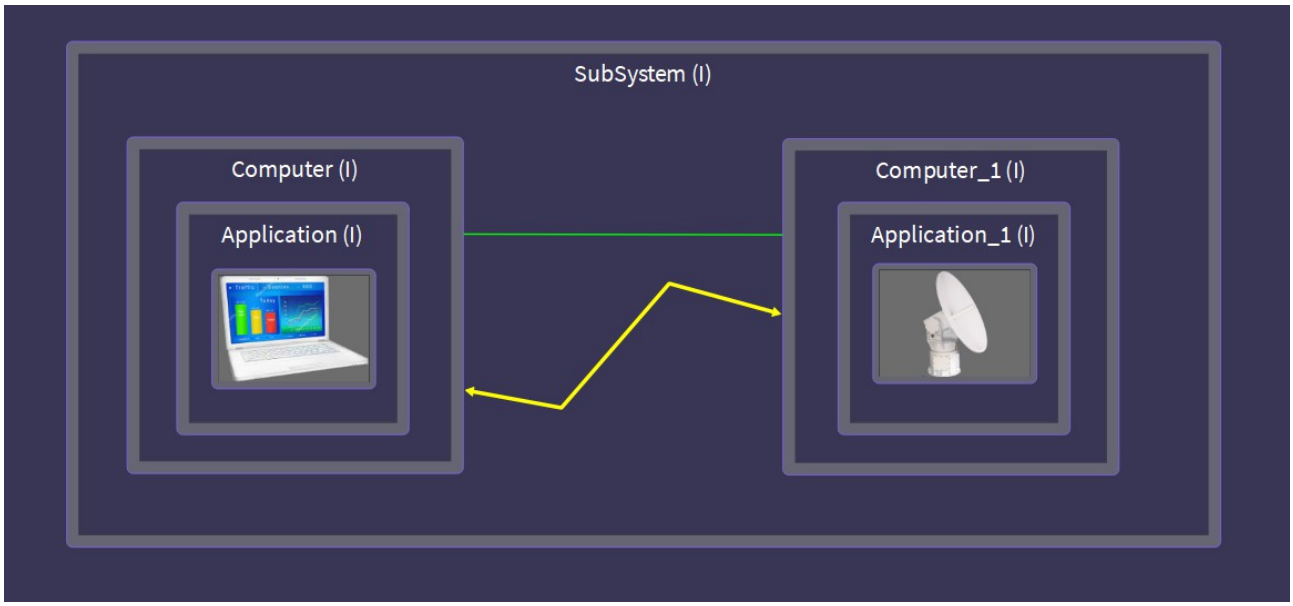


Figure 2.3.5.3.4. Straight line without direction and bi-directional custom line.

2.3.5.2. Move Line

You can move the line by holding it and simultaneously dragging.

2.3.5.3. Remove Line

You can remove the line by the right mouse-click and selecting **Delete** option.

2.3.6. Add Frames

You can add frame on the project scene. The frame is used for a possibility to group elements on the project scene and move them together. To add the frame, select **Frame** button on the **Menu Toolbar** and draw the frame on the project scene by the clicking on the Project Scene by the left mouse button, then holding the mouse button and moving the mouse. The rectangular frame of custom size appears. You can change the frame size by

the mouse drag of the frame boundary. Then you can place the elements into the **Frame** by the drag of element. The elements is fixed in the frame and may be dragged together by dragging the frame containing them.

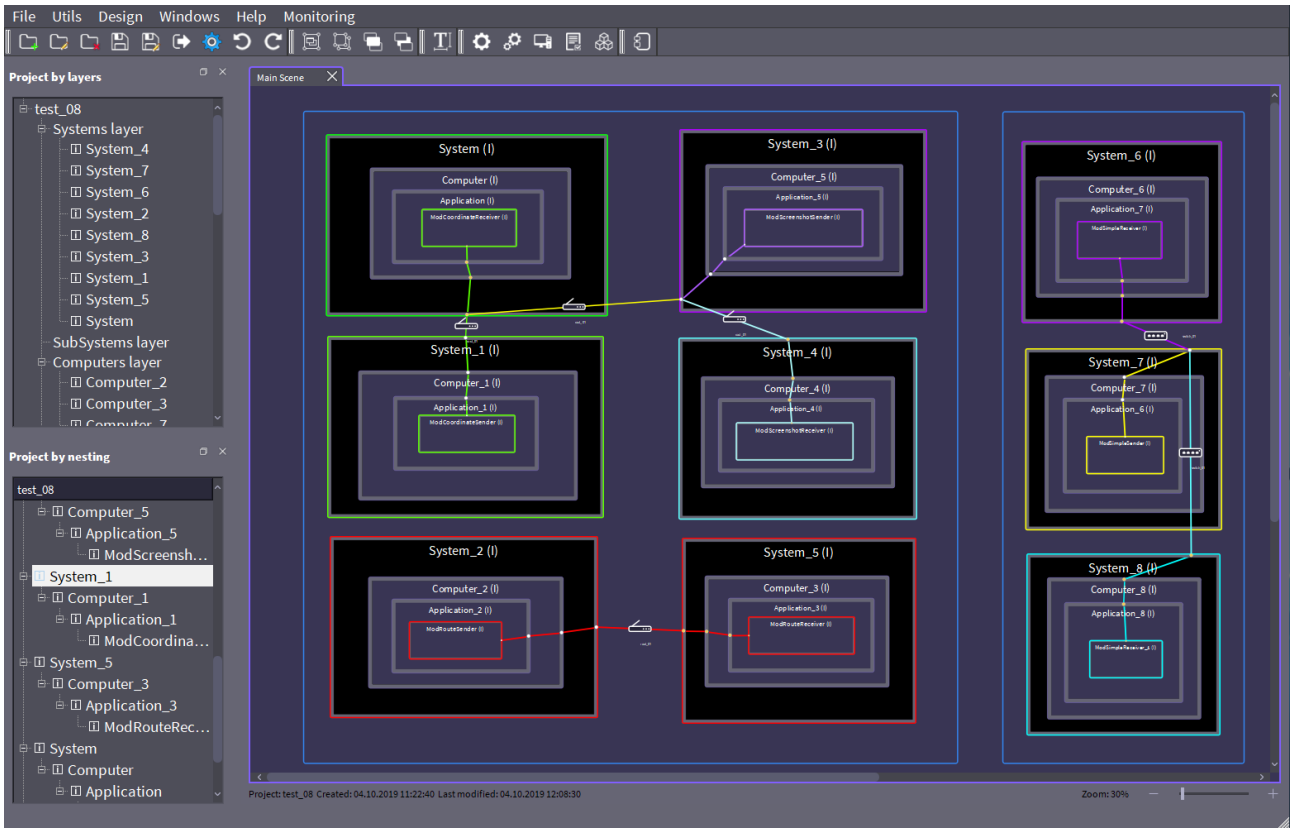


Figure 2.3.6. Elements grouped into two blue frames.

2.3.7. Add Boundary

The boundary is the same with frame except the possibility to move elements together when boundary is moved. You can place the boundary on the **Project scene** by the same way as place the frame (2.3.6. Add Frames).

2.4. Saving The Project

You can save the project by clicking on the **Save** button on the **Menu Toolbar**. To save the project to a custom directory, select the **Save as** option in the **File** menu or **Save as** button on the **Menu Toolbar**, then select the directory.

2.5. Opening The Project

You can open the project by selecting the **Open** option in the **File** menu or **Open** button on the **Menu Toolbar**.

2.5.1. Opening Recent Project

You can open the recently saved project using **Recent Projects** field on the **Start screen**.

// Deploy, Monitoring, Update, Upload (to add)

User Interface Guide

3. General Overview

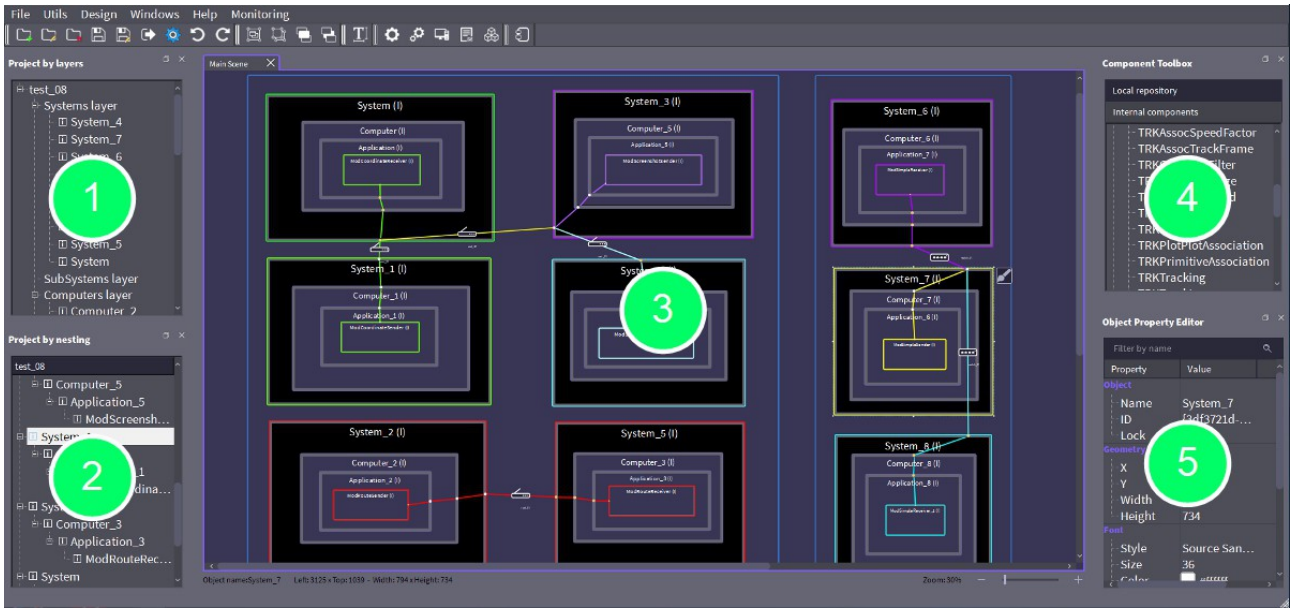


Figure 3. VIDE Interface Overview

1 – Project by layers (3.7.1)

2 – Project by nesting (3.7.2)

3 – Project scene (3.2)

4 – Component Toolbox (3.8)

5 – Object Property Editor (3.9)

3.1. Start Page

When you launch the VIDE, you see the **Start Screen**.

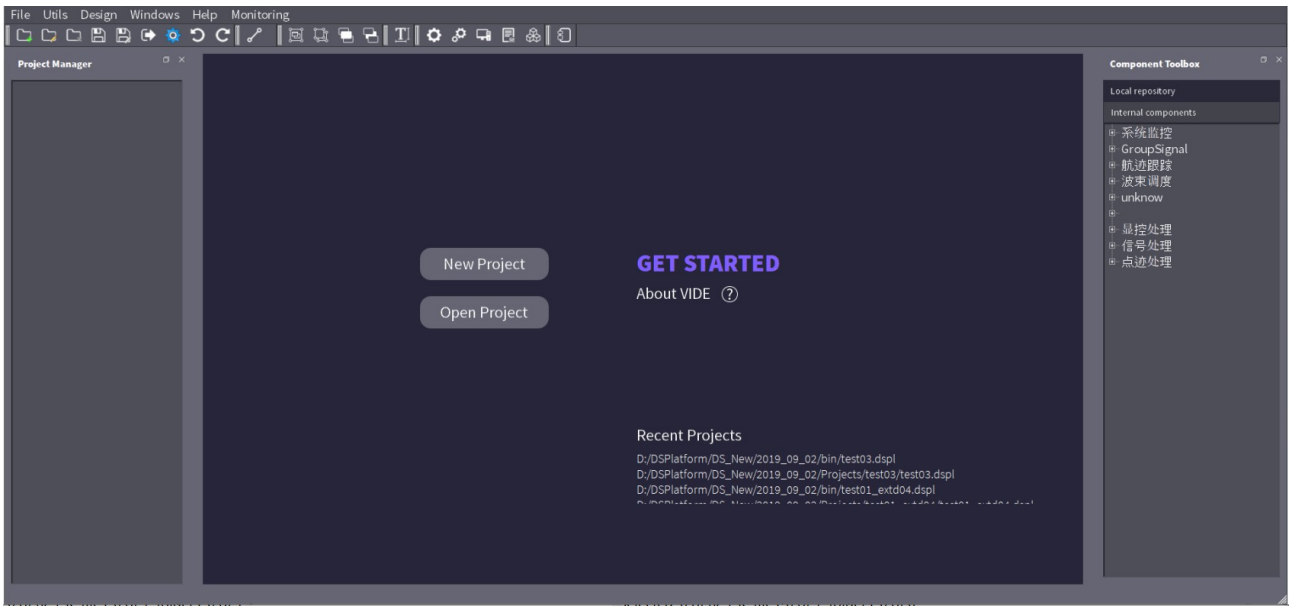


Figure 3.1. VIDE Start Screen

The **Start Screen** provides possibilities to

- Create New Project (**New Project** button)
- Open existing Project (**Open Project** button)
- Open recently created projects (**Recent Projects** field)
- Receive information about VIDE (**About VIDE**)

3.2. Project Scene

The project is created on the **Project Scene**. The **Project Scene** is intended to create the configuration of the system to be implemented. You can

- place elements of the system to the project scene and modify them

(see the 2.3.2. Add and Modify Elements),

- establish the connections between the elements

(see the 2.3.4. Add Connections Between Components),

- Add lines between the the elements

(the 2.3.5. Add Lines)

- Add frames

(See the 2.3.6. Add Frames)

- Add boundaries

(See the 2.3.7. Add Boundary)

Figure 3.2.1. Empty Project Scene.

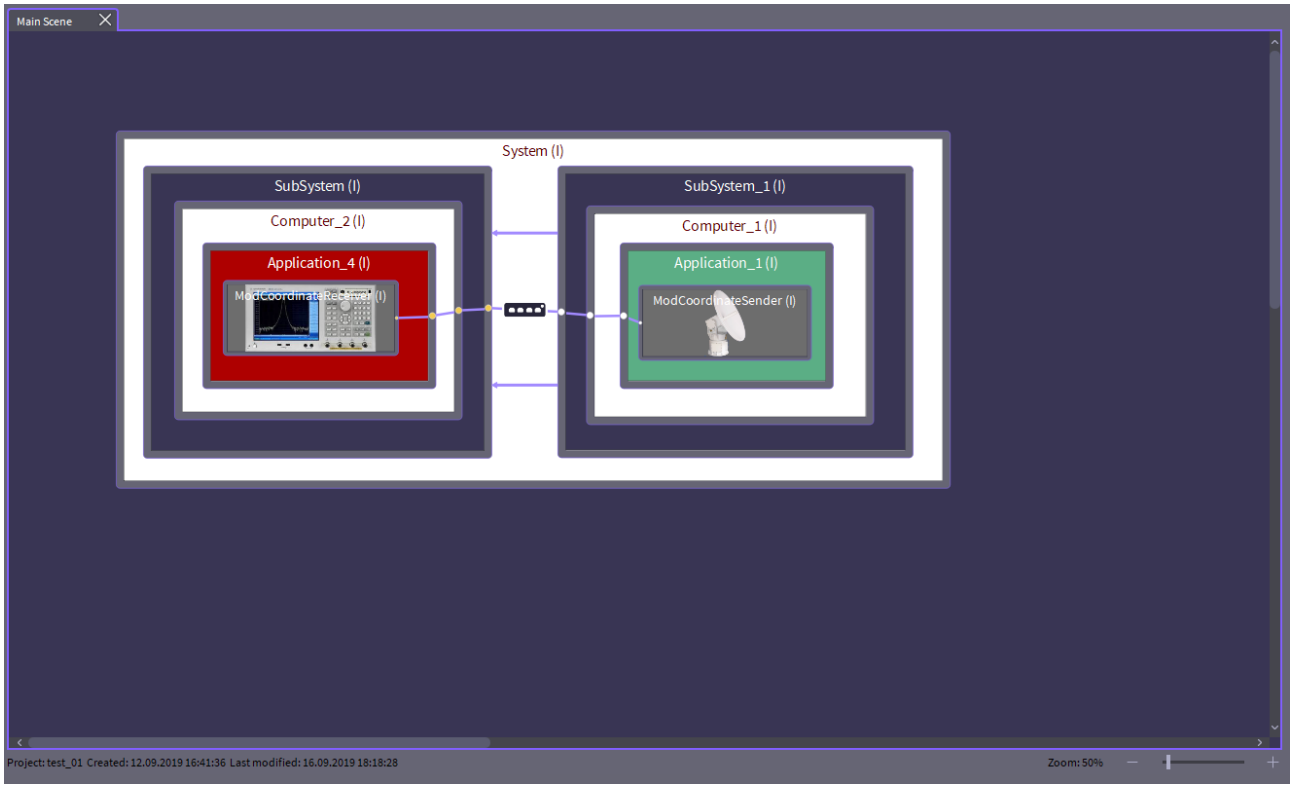


Figure 3.2.2. Simple Project on the Project Scene.

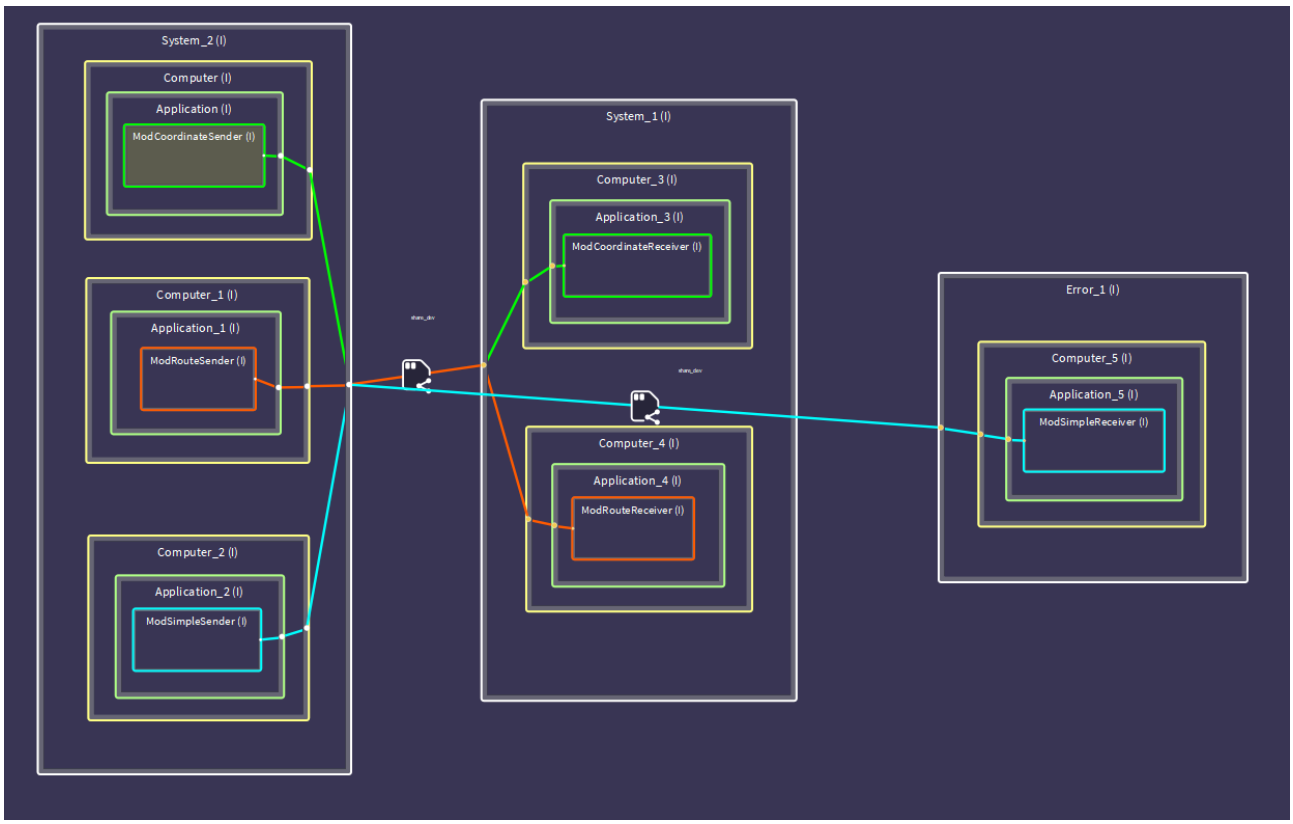


Figure 3.2.3. More Complicated Project on the Project Scene.

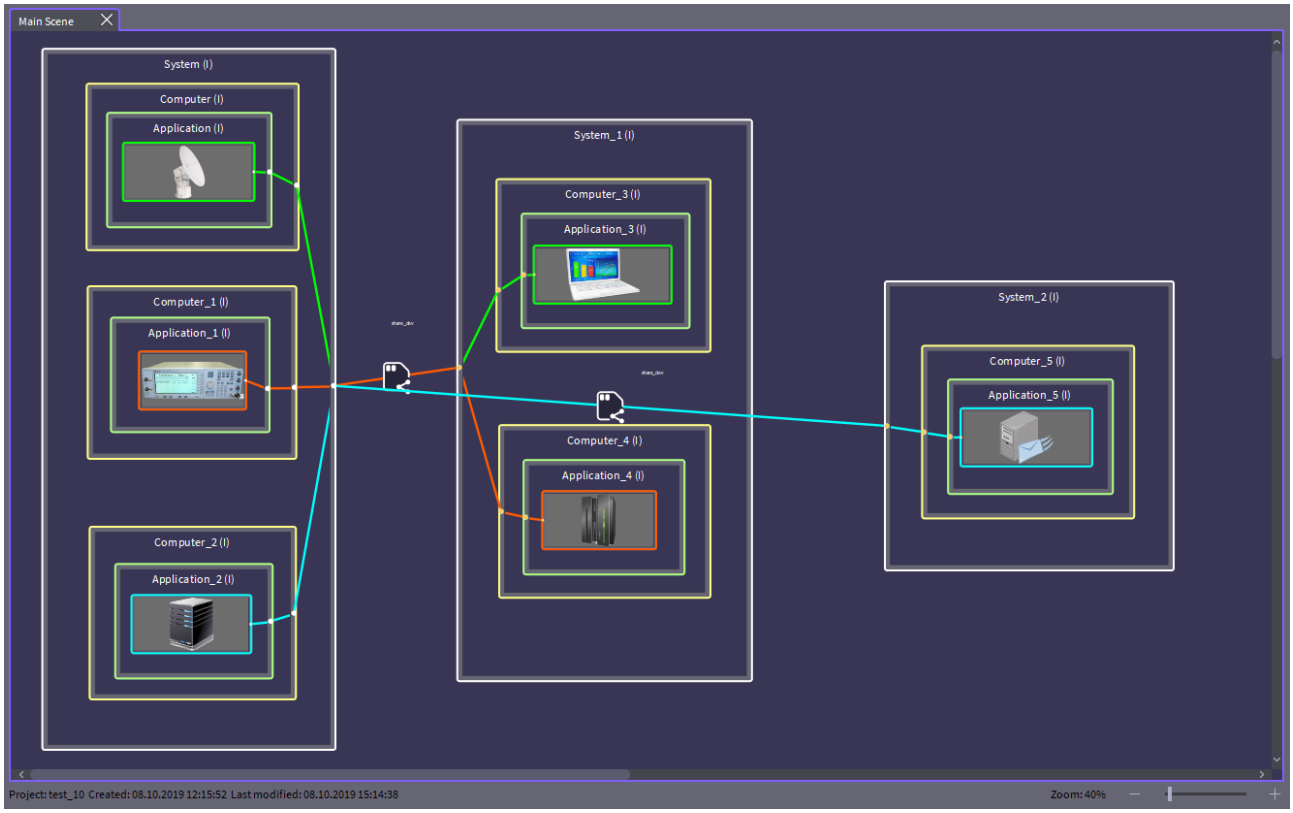


Figure 3.2.4. More Complicated Project with Images on the Project Scene.

3.2.1. Project scene tabs

The following elements on the project scene may have elements inside:

- System
- Subsystem
- Computer
- Application

You can open the inside elements of the each of element of the list above in the separated tab for convenience. Just click double on the element in the **Project Hierarchy Toolboxes** (**Project by layers** or **Project by nesting**). The element tab appears with all elements and connections inside this element.

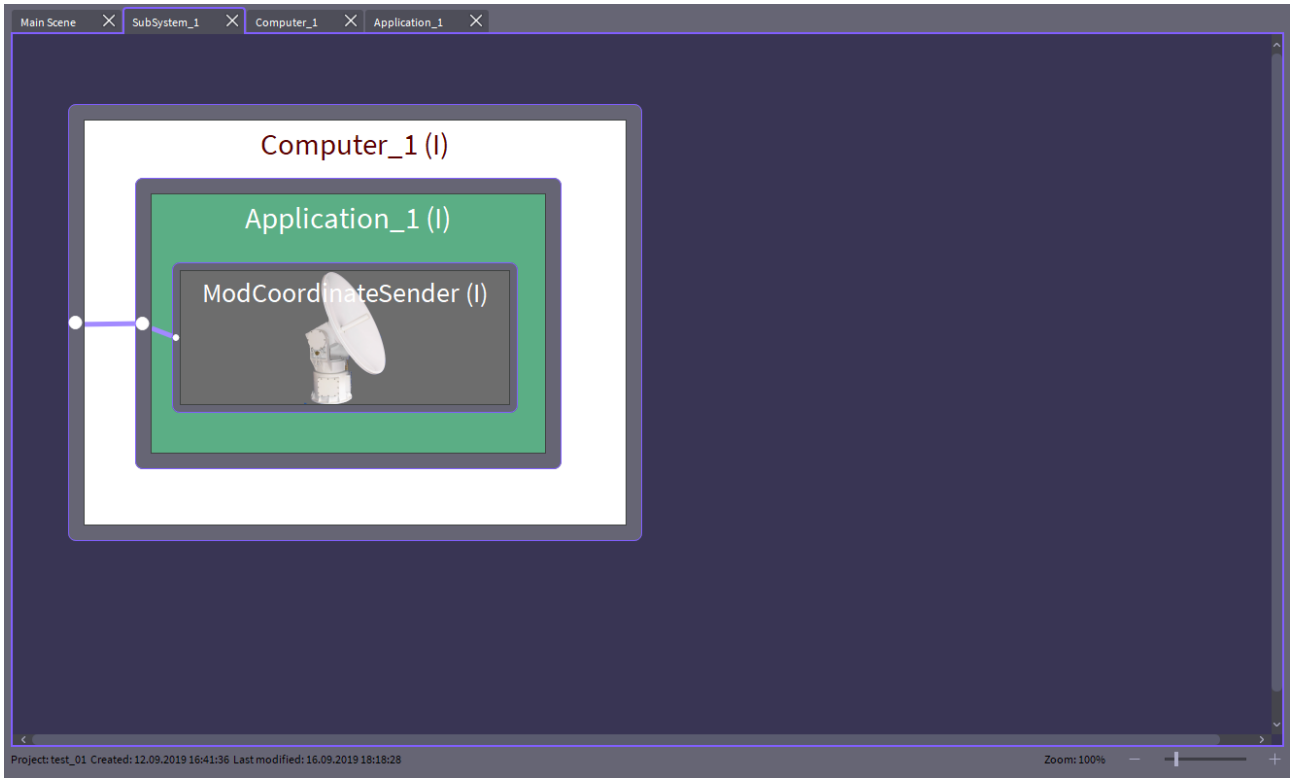


Figure 3.2.1.1. Subsystem tab of the Simple Project

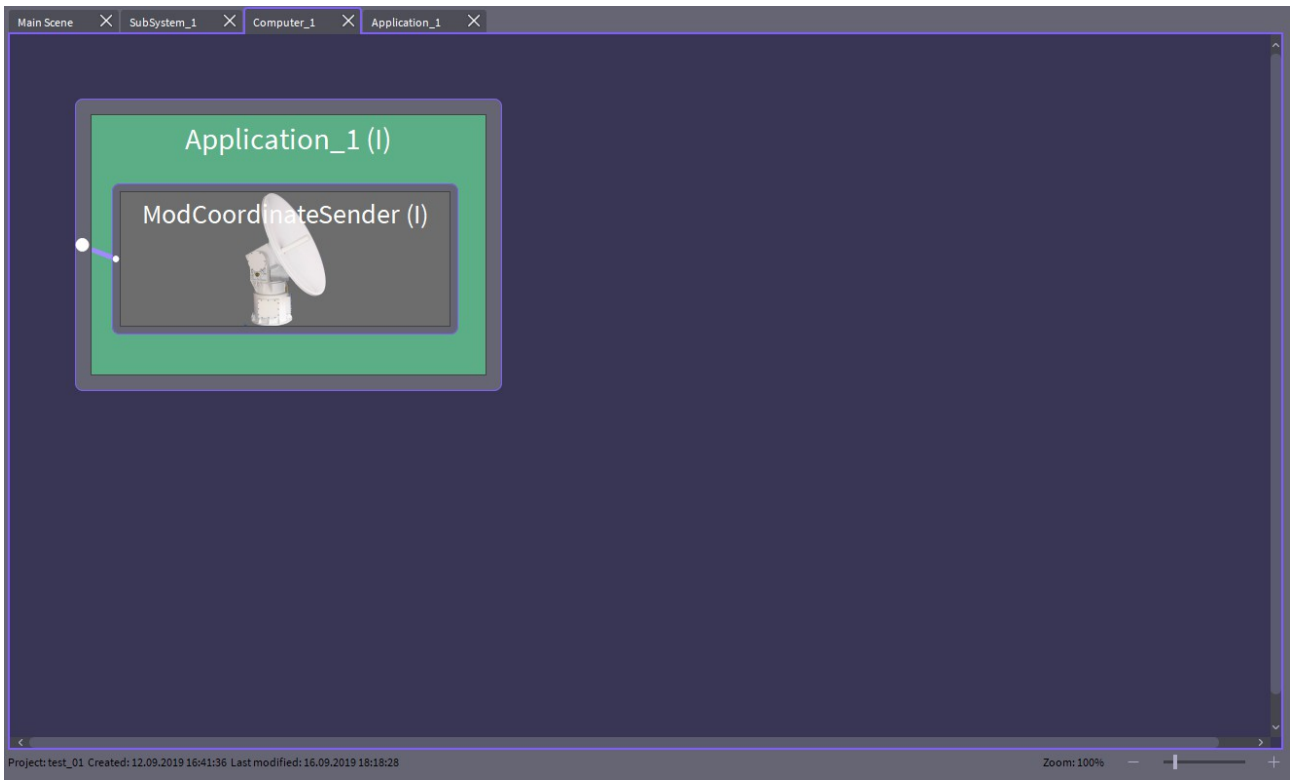


Figure 3.2.1.2. Computer tab of the Simple Project

Figure 3.2.1.3. Application tab of the Simple Project

3.3. Menu bar

The **Menu bar** contains the options to manage the project. There are following options in the **Menu bar**:

- File
- Utils
- Design
- Windows
- Help
- Monitoring

3.3.1. File

The File menu contains the following options:

Option	Functionality
New Project	Create a new VIDE Project
Open Project	Open existing VIDE Project
Save Project	Save the project being created
Save Project As	Save the project being created to the custom directory
Deploy Project	Deploy the project on the target devices
Close Project	Close the Project being created
Generate Class	Open a form to create a code template of the component
Recent	Open a list of recently designed projects

3.3.1.1. Generate Class

You can create a a code template of the component using **File → Generate class** option.

To create a code sample, you should to fullfill the following fields in the window appears:

Field	What is This?
Identifier	Main Class name of the component
Name	A component name
Version	Version of the component to create
Brief	Brief description of component's functionality, information about developer and modifier of the component
Type	// to add
Interfaces	Interface is an abstract class without fields in component's code. You may add as many interfaces as you need.

3.3.2. Utils

// Utils option is planned for the implementation

3.3.3. Windows

The Windows menu contains the following options:

Option	Functionality
Project by Layers	If *checked*, the elements of the system are displayed by the groups of the same types of elements in the **Project by layers** panel left top from the Project scene. If *unchecked*, the **Project by layers** panel is not displayed.
Project by Nesting	If *checked*, the hierarchy of elements in the system is displayed in the **Project by nesting** panel left bottom from the Project scene. You can expand/minimize the element groups by clicking on the [+]/[-]. If *unchecked*, the **Project by nesting** panel is not displayed.
Modules	If *checked*, the hierarchy of components to deploy in the system is displayed in the **Component Toolbox** panel right top from the Project scene. You can extend/minimize the component groups by clicking on the [+]/[-]. If *unchecked*, the **Component Toolbox** panel is not displayed.
Object Properties	If *checked*, the **Object (Element) Property Editor** panel is displayed right bottom from the Project scene. You can adjust elements properties in this panel. If *unchecked*, the **Object (Element) Property Editor** panel is not displayed.
Pan and Zoom	Opens a **Pan and Zoom** window. You can adjust the scaling of the system designed on the project scene and configure which part of the system to display on the Project scene.

3.3.4. Help

The **Help option** contains the information about application and **User Help** planned for implementation.

3.3.5 Monitoring

The Monitoring option provides a functionality to monitor a state of the applications of the system has been deployed.

// This functionality is currently being developed.

3.4. Menu Toolbar

You may select most of the options from **Menu bar** by using the **Menu Toolbar** containing graphical shortcuts. The **Menu Toolbar** also contains additional features **Menu bar** doesn't have.

Option	Shortcut	Functionality
Project Menu Toolbar		
New Project		Create a new VIDE Project
Open Project		Open an existing VIDE Project
Close Project		Close the project being designed
Save Project		Save the project being created
Save Project As		Save the project being created to the custom directory
Deploy Project		Deploy the project on the target devices
Generate Class		Open a form to create a code template of the component

Undo // Implementation is being performed		Revert the last user action performed on the Project scene
Redo // Implementation is being performed		If some **Undo** action has been performed by the user, **Redo** reverts to the user action performed before this **Undo** (returns a state on the Project scene before Undo action [initial state])
Scene Toolbar		
Group // Implementation is planned		Place all selected elements into frame (2.3.6. Add Frames). Selection is performed by holding the Ctrl button and subsequent mouse-click
Ungroup // Implementation is planned		Removes frame containing the elements
Foreground		If some element overlaps another, this function displays the overlapped element in foreground of the overlapping element if overlapped element is selected. The overlapping element becomes in the background.
Background		If some element overlaps another, this function display this overlapping element on the background of overlapped element if overlapping element is selected.
Text Toolbar		
Add Text		Add a Text to any place of the Project scene
Elements Toolbar		
Add System		Add a System frame to the Project scene
Add Subsystem		Add a Subsystem frame to the project scene

Add Computer		Add a Computer frame to the Project scene
Add Application		Add an Application frame to the Project scene
Add Frame		Add an Empty frame to the project scene
External Components Toolbar		
Add External Component		Add an External component to the Project scene

3.5. Graphic Elements Bar

You may change the style view of the elements on the **Project scene**. To do this, you should click on the element, then the button appears at the right top corner of the element. Click on this button and the **Graphic Elements Bar** appears.

Figure 3.5.1. Graphic Elements Bar button

Figure 3.5.2. Graphic Elements Bar

There are following options at the **Graphic Elements Bar**:

Option	Shortcut	Functionality
Font Type		Change a font type of the element
Font Colour		Change a font colour of the element
Element Colour		Change the colour of the element
Element Boundary Colour		Change the colour of the element's boundary
Element Boundary Width		Change the width of the element's boundary
Revert to Initial Element Boundary Width		Cancel any changes of the element boundary with. The width is returned to the default value of 1.

3.6. The context menu

You can open the context pop-up menu by clicking by right mouse-click on an empty space (the space is not occupied by any element) on Project scene.

The context menu contains the following options:

Option	Shortcut	Functionality
Straight Line		Provide a possibility to draw the straight line between elements of the same type.*
Curved Line		Provide a possibility to draw the curved line between elements of the same type.*
Custom Line		Provide a possibility to draw the custom line between elements of the same type. Custom line is the line of any configuration made up from the

		straight lines.*
System		Add a System frame to the Project scene
Subsystem		Add a Subsystem frame to the project scene
Computer		Add a Computer frame to the Project scene
Application		Add an Application frame to the Project scene
External Component		Add an External Component frame to the Project scene
Boundary		Add a Boundary frame to the Project scene

* **Note:** The Line can be drawn only between components of the same type which are in the frame of the common element (Figure **2.3.5.1.**, **2.3.5.1. Add Straight Line** Chapter). On the Figure **2.3.5.1.** two computers linked with the line are in the frame of common Subsystem element.

3.6.1. The context menu of the elements

Option	Shortcut	Functionality
Set Image		Change a view of element from shape to image
Lock/Unlock		Lock the element for a moving or unlock it
Add Note		Provide a possibility to add a note for the element
Set Connections		Provide a possibility to set connections between elements

Rename		Rename the element
Delete		Delete the element

3.7. Project Boxes

There are two project boxes are possible to display left from the Project scene:

- Project by layers
- Project by nesting

3.7.1. Project by Layers (Project Levels)

The Project by Layers box displays all elements of the system sorted by element's type.

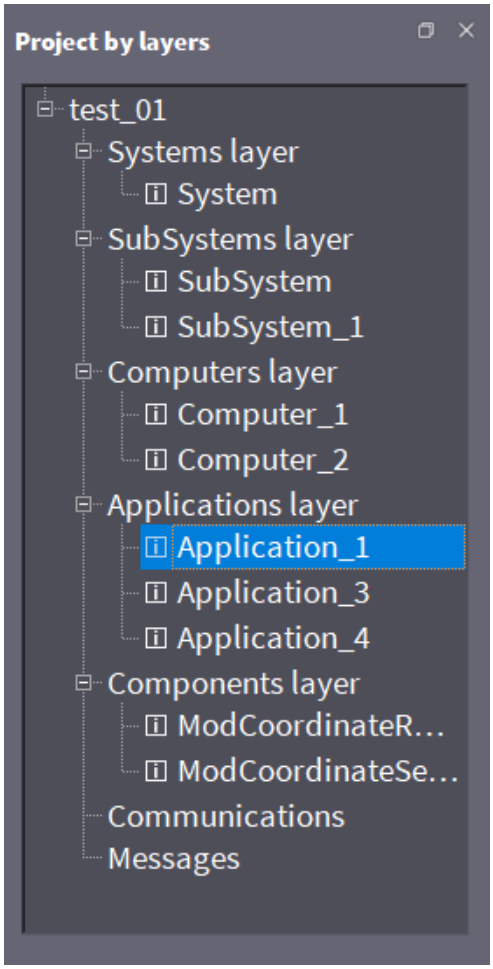


Figure 3.7.1. Project by Layers (Project Levels)

3.7.2. Project by Nesting (Project Tree)

The Projects by Nesting box displays hierarchy of the elements in the system as tree. You

may expand/minimize the element groups by clicking on the [+]/[-].

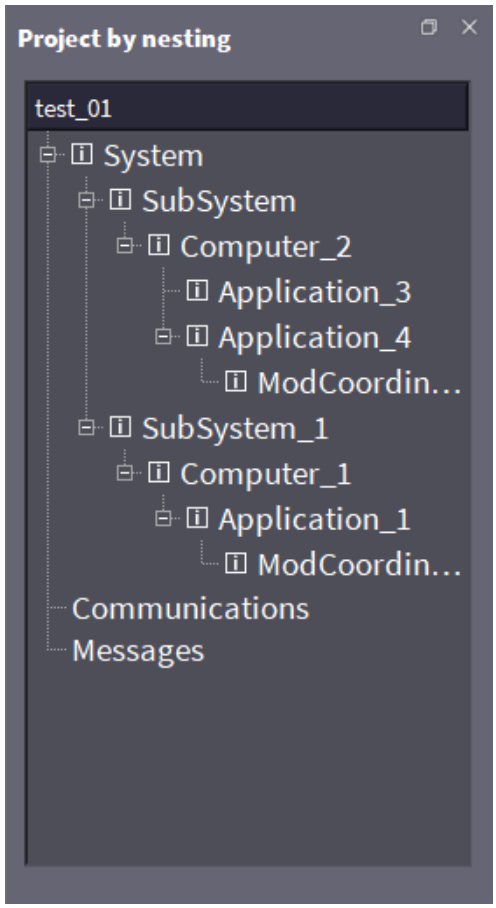


Figure 3.7.2. Project by Nesting (Project Tree)

3.8. Component Toolbox

The Component Toolbox contains the components prepared to be applied in the system designed. The components in the Component Toolbox may be sorted into groups according to their common purpose/functionality/any criterium defined by you.

Figure 3.8. Component Toolbox

3.8.1. Component Properties.

You may get the Component Properties from the **Component Toolbox**. To do this, click on the component in the **Component Toolbox** by the right mouse-click, then select **Properties** option in a pop-up menu appears. The dialog window with the component properties appears.

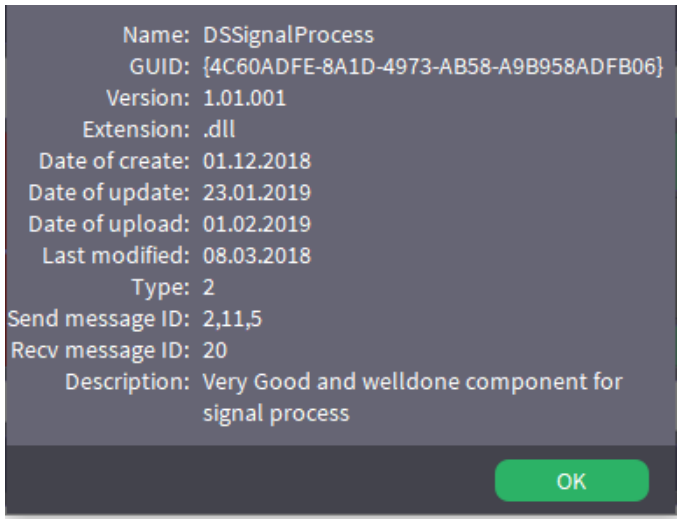


Figure 3.8.1. Component Properties window

3.9. Object Properties Editor (Element Properties Box)

You may get coordinates, geometry attributes and styles attributes of each element on the **Project scene** using **Object Properties Editor** panel located right bottom from the **Project scene**. To do this, you should select the element on **Project scene** by the left mouse click. The coordinates, geometry attributes and styles attributes of element selected is appeared in the **Object Properties Editor.**

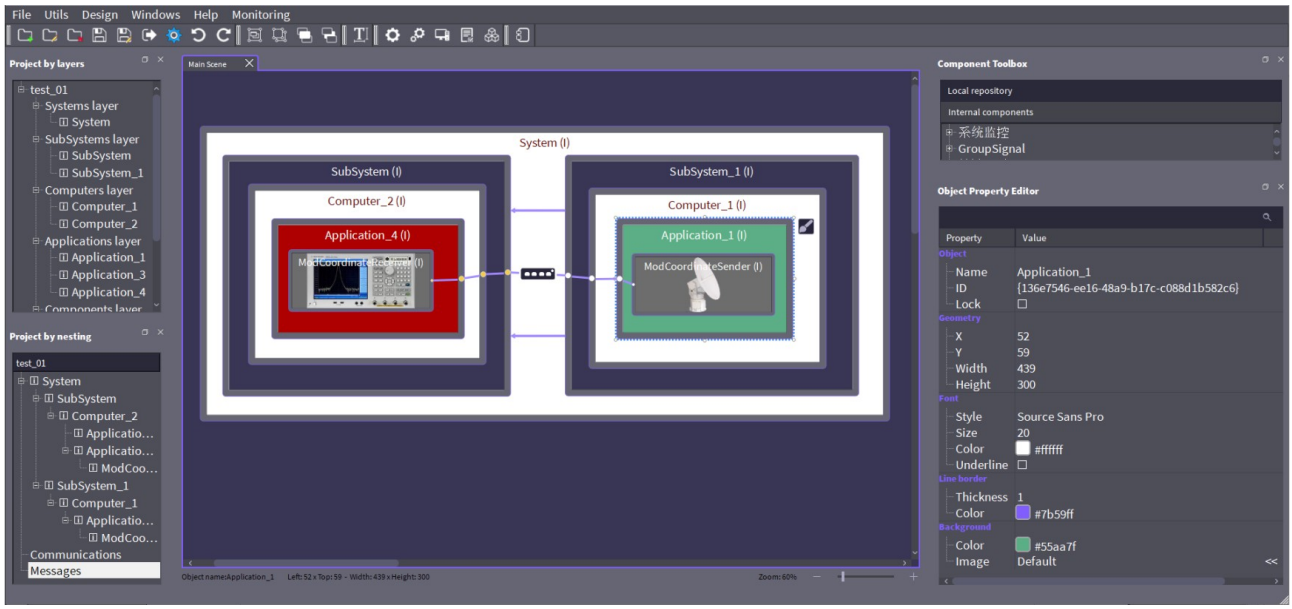


Figure 3.9. Object Properties Editor is at the right bottom of the Project scene

There are following fields in the **Object Properties Editor** and corresponding attributes:

Field	Attributes	Description	Example
Search	*None*	Search and sort attributes	Typing style in the Search field displays only a font style attribute in the **Object Properties Editor**
Element	Name	The name of element	Application_1
	ID	ID of the element in system designed	{136e7546-ee16-48a9-b17c-c088d1b582c6}
	Lock	Checkbox displaying if the element is locked for the moving or not.	☐
Geometry	X	The X coordinate of the top right corner of the element on the Project scene. The origin point is in	52

		the top left corner of the Project scene.	
	Y	The Y coordinate of the top right corner of the element on the **Project scene**. The origin point is in the top left corner of the **Project scene**.	59
	Width	The width of the element.	439
	Height	The height of the element.	300
Font	Style	The font of element's caption	Source Sans Pro
	Size	The size of font of element's caption	20
	Colour	The colour of font of element's caption	
	Underline	The checkbox displaying if the element's caption underlined or not	
Line Border	Thickness	The thickness of element's border	1
	Colour	The colour of element's border	
Background	Colour	The colour of element's background	
	Image	The image of the element (if selected). If not, the Default value is displayed.	Default

3.10. Pan and Zoom

Pan and Zoom tool provides you possibilities to:

● reveal which part of the **Project scene** you are observing after large scaling

● scale **Project scene** by any way simultaneously observing part of the **Project scene** that is not visible on the **Project scene**

● adjust a size of frame of visible part of the **Project scene** to any preferred size and quickly place it to any part of **Project scene** to quickly move to this part (useful for big

project configurations).

To launch **Pan and Zoom** option, select on the **Windows** option in **Main menu**, then select **Pan and Zoom**.

You can adjust the frame of visible part of **Project scene** to any preferred size by two ways:

1) Hold **Ctrl** and use mouse scroll.

2) Use the scale bar at top of **Pan and Zoom** window.

Move the Pan and Zoom frame by mouse hold and drag.

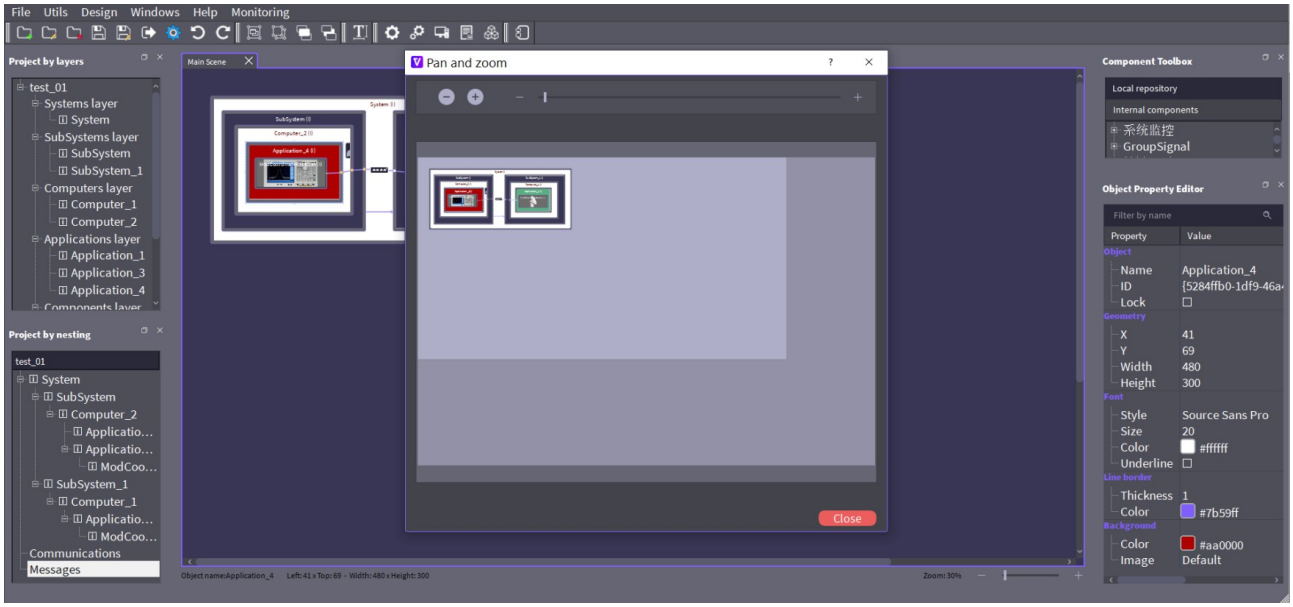


Figure 3.10.1. Pan and Zoom

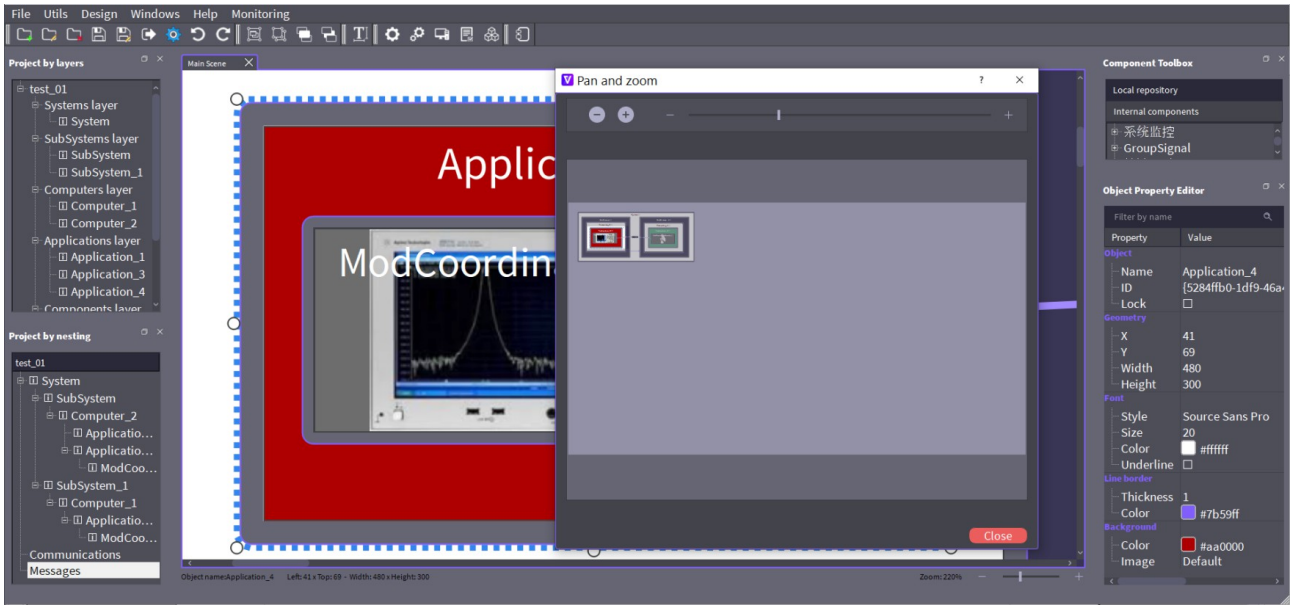


Figure 3.10.2. Pan and Zoom (Zoom in)

3.11. Status Bar

The **Status Bar** is located bottom from the **Project Scene**.

The **Status Bar** provides you a following information of project:

1) Name of Project

2) Date and Time of creation of Project

3) Date and Time of modification of Project

If you select some element on the **Project scene**, the Status bar will display an information of this element:

1) Element's Name

2) Coordinates of the top left corner of the element

3) Geometric size of the element

3.12. Text Box

You may add the **Text Box** to any place of the **Project scene**. To do this, click on the **Add Text [T]** button of the **Menu Toolbar**, hold and drag on the **Project scene**. The **Text Box** appears. Double click on the **Text Box** and type a text, then click **Enter**.

3.12.1. Change A Style of Font in The Text Box

To change a font type or font colour in the **Text Box**, double-click on the **Text Box**, the right click and select **Select All** option in the pop-up context menu appears. Then a text in **Text Box** becomes selected all. Then click on the selected text by the right mouse click and select **Change Font Type** option or **Change Font Colour** option like in **Graphic Object Bar** (See 3.5. Graphic Elements Bar).