POLYWALL PRO

ANY SOURCE ON ANY DISPLAY

Installation Manual

Version 2.0.1033

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POLYWALL

Visualization Control

Polywall software: **Information Visualization on Distributed Displays.**

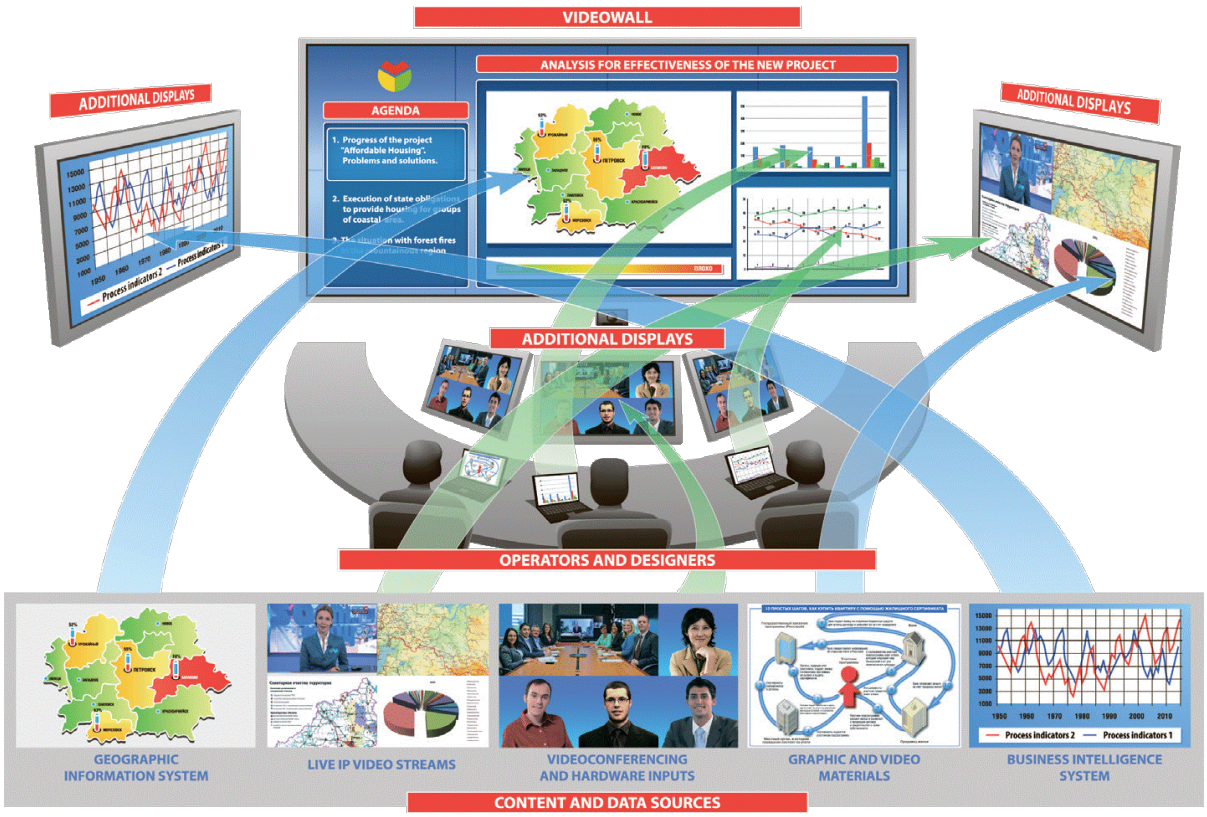
Control of information output and support of meetings, panels, conferences and workshop meetings in control centers, situation rooms, conference halls, panel and military board halls.

Any meeting will be efficient only if participants thereof see and perceive information. To achieve this, it should be prepared and visualized respectively. Information displaying control during the event is of no small importance as well. This process's being easy and fast saves your time and efforts when preparing and holding conferences, meetings and other events.

The Polywall was developed to solve tasks, such as:

- efficient management of practically all the operation modes for audiovisual systems, both in real time and under a scenario prepared beforehand;
- operational and simple control of information visualization modes from any quantity of various-type sources on any quantity of various-type display facilities;
- creating and saving non-linear meeting scenarios, which include states of all the hardware and software facilities at any time, as well as scenario calling and editing functionalities.

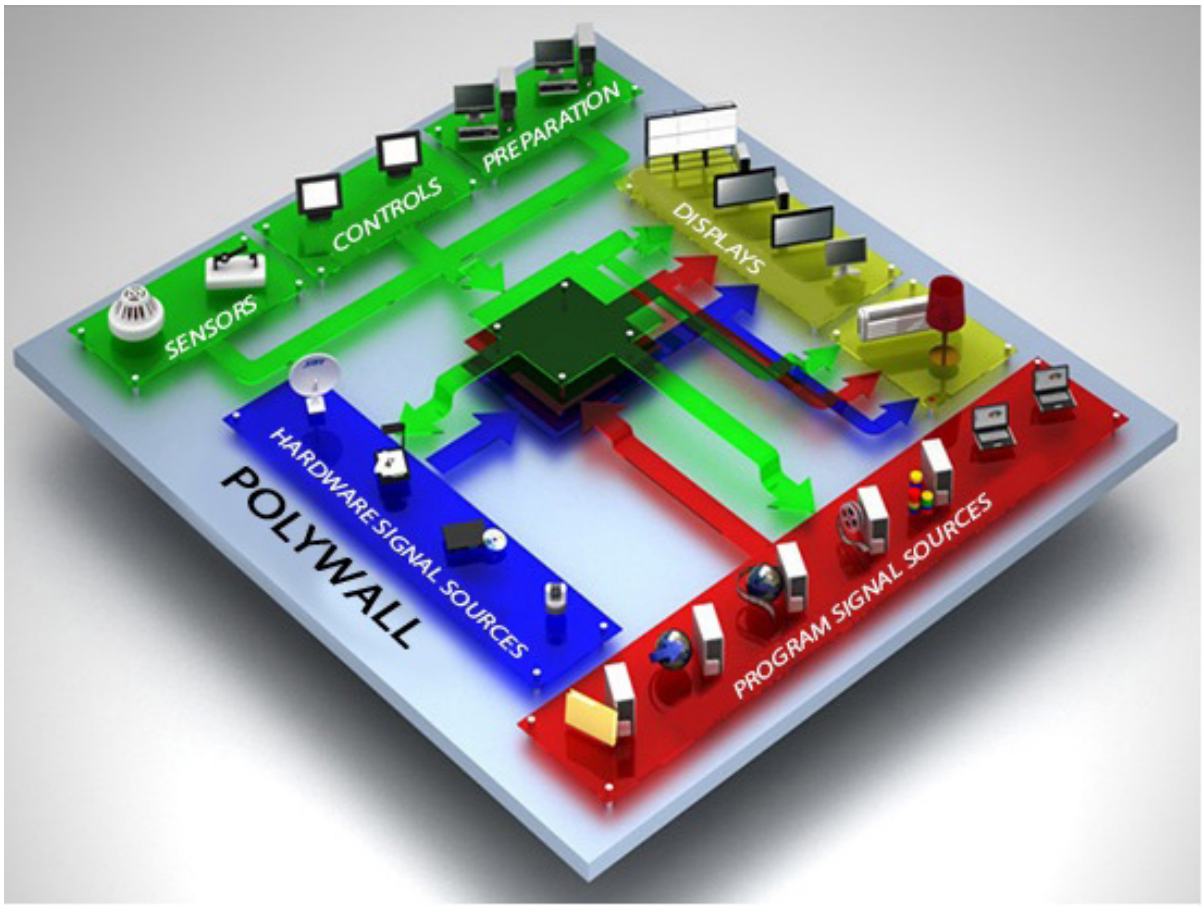
The diagram below demonstrates the basic **Polywall operating principle** – as simple visualization control as possible. Information from any source, whether standard audiovisual equipment or specialized software, can be displayed on any screens with maximum possible efficient use of their functionalities, considering ergonomic requirements and ensuring correct perception and easy data handling.



Organization of information output to the distributed display system

Facilities of this software complex:

- can be integrated in any audiovisual system with minimum modifications,
- provide a possibility of automated control for:
  - complex operation modes,
  - the state and functional interaction:
    - any audiovisual information sources,
    - videoconferencing facilities,
    - processing and switching facilities,
    - interactive system,
    - applied software.



Polywall complex operating principle

Polywall is a scenario-oriented complex; it allows the user to save the complex state at any time as individual scenes, of which sequences for demonstration – meeting scenarios – are generated.

Information sources

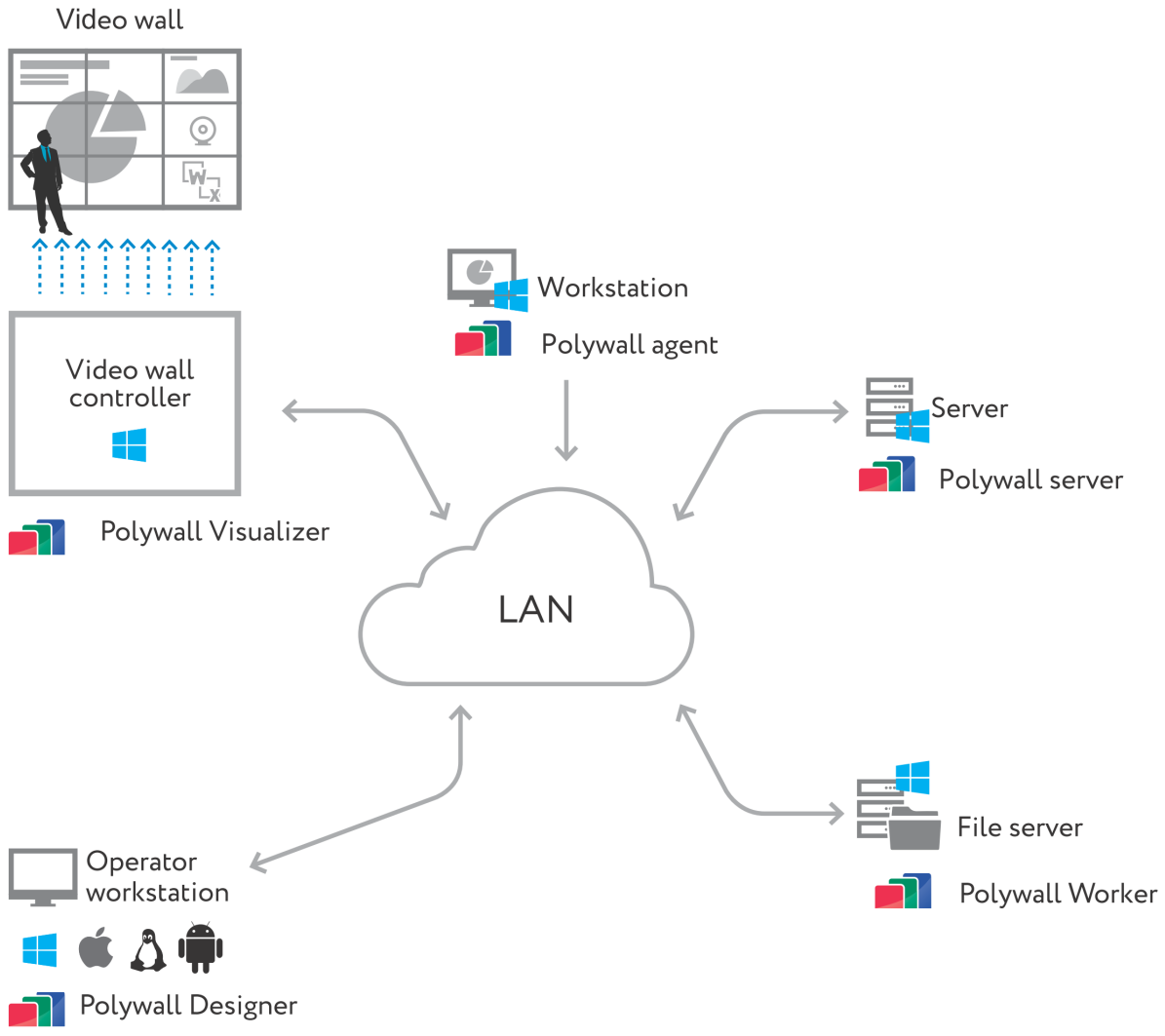
The Polywall SW enables the user to show both Software and Hardware sources:

	Sources	POLYWALL	POLYWALL PRO
Software	MS Office (DOC, XLS, PPT, DOCX, XLSX, PPTX)	✓	✓
	Image (JPG, JPEG, BMP, GIF, PNG)	✓	✓
	Video (AVI, MPEG, WMV, 3GP, 3G2, MOV, MPG, MP4, FLV, MKV)	✓	✓
	Ip-camera	✓	✓
	Web-pages	✓	✓
	Video stream (RTSP, H.264)	✓	✓
	Remote desktop (VNC Viewer)	✓	✓
	PDF	✓	✓
	Text	✓	✓
	Application (EXE)	✓	✓
	Polywall Agent (Polywall VNC Server)	✗	✓
	Playlist (AVI, MPEG, WMV, 3GP, 3G2, MOV, MPG, MP4, FLV, MKV)	✓	✓

	Sources	POLYWALL	POLYWALL PRO
Hardware	Hardware RGB-source	✓	✓
	Computer, server station	✓	✓
	Video-conference communication terminal	✓	✓
	Document-camera	✓	✓
	Video camera (hardware video-source)	✓	✓
	DVD-player	✓	✓
	TV-tuner	✓	✓

POLYWALL STRUCTURE

Polywall consists of three critical components and one extra. All of them interact with each other in LAN. Each component is responsible for its specific task.



The diagram reflects all possible nodes with Polywall components.

First of all there is a video wall (in this particular case with 9 cubes which total resolution is 5760x3240). Video wall is connected to a video wall controller on Windows OS with professional graphic cards.

Polywall Visualizer component is responsible for opening a content in proper place with proper size. This component must be installed on the video wall controller (display facility computer).

Polywall Server is the main component and establishes connections between all Polywall nodes. License key is bind to Polywall Server component and Polywall Designer web interface is located inside this component as well.

Polywall Worker shares a content for Polywall from any Windows based machine.

Polywall Agent is extra component which purpose is mirroring Windows PCs desktops.

Polywall Designer is not a component but Polywall control web interface to manage whole system.Polywall Designer can be run in compatible browser (Chrome, Mozilla) on any OS and device.

Meanwhile Polywall Server, Visualizer, Worker and Agent are compatible with Windows only.

Recommendations for installation of Polywall components

Name	Minimum requirements
Server	Operating Systems: 1. Windows Server 2008 R2 2. Windows Server 2012 R2 3. Windows 7 Pro x64 4. Windows 7 Ultimate x64 5. Windows 8 Pro x64 6. Windows 8.1 Pro x64 7. Windows 10 Pro x64
Visualizer	Operating Systems: 1. Windows Server 2008 R2 2. Windows Server 2012 R2 3. Windows 7 Pro x64 4. Windows 8 Pro x64 5. Windows 8.1 Pro x64 6. Windows 10 Pro x64 Microsoft Office 2007 – 2016.
Worker	Operating Systems: 1. Windows 7 Pro x64 2. Windows 7 Ultimate x64 3. Windows 8 Pro x64 4. Windows 8.1 Pro x64 5. Windows 10 Pro x64

The Server can be installed both on a video wall controller and on an individual computer. We recommend you to install the Server on an individual computer in case when the Polywall is required to control several video wall controllers.

The Worker shall be installed on all computers that are supposed to be the files sources to be displayed.

The Visualizer shall be installed on each computer being a video wall controller.

After installation and setup of all Polywall components, the operator shall start the Polywall web-interface (Designer) on his/her computer.

Warning! Polywall components versions must be the same!

Network constraints

Warning! Server, Visualizer and Worker must be in the same network and be accessible to each other.

Please pay attention to any side software which can occupy Polywall ports or block Polywall component interactions (antiviruses, firewalls, endpoint security).

Hypervisor constraints

Warning! Polywall software is not compatible with VirtualBox virtual machines.

POLYWALL INSTALLATION

Standard configuration

- The Server, the Visualizer and the Worker are installed on the same computer.
- The operator controls the Server content from his/her computer, showing the content from the Server PC.

To install and set up the standard configuration, the **Polywall Kit** shall be installed; and after installation of all the components, they shall be set up using the **Wizard** configurator.

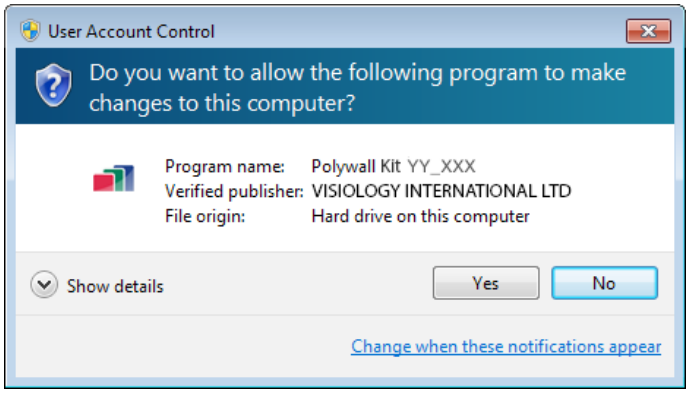
Advanced configuration

- The Server, the Visualizer and the Worker are installed on the same computer (like in **Standard configuration**).
- The Vizualizer and the Worker can be installed on other computers located within the same local network as the Server (with **Polywall Kit** it is easy to install one or two different Polywall components separately).
- The operator controls the content of the Server and other display facilities (with Visualizer SW installed) from his/her computer to show the content from the Server PC and other PCs (with Worker SW installed).

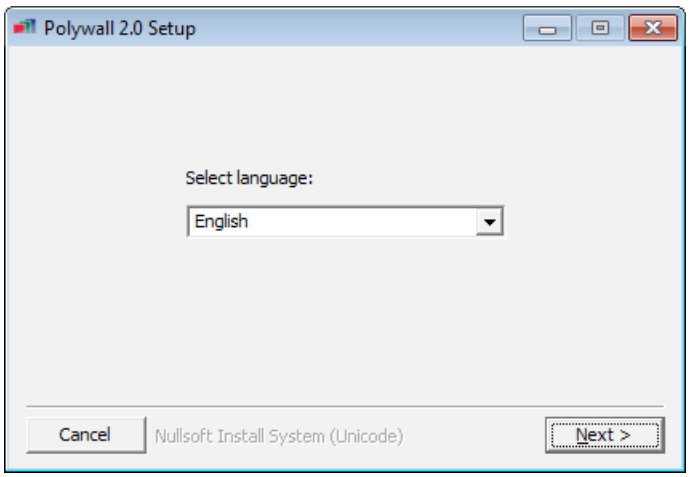
Component selection

1. Launch the file '**Polywall Kit YY_XXX.exe**'.
   Here, '**YY**' is a language code value, and '**XXX**' is a build number.

2. Allow the program to make changes on this computer.



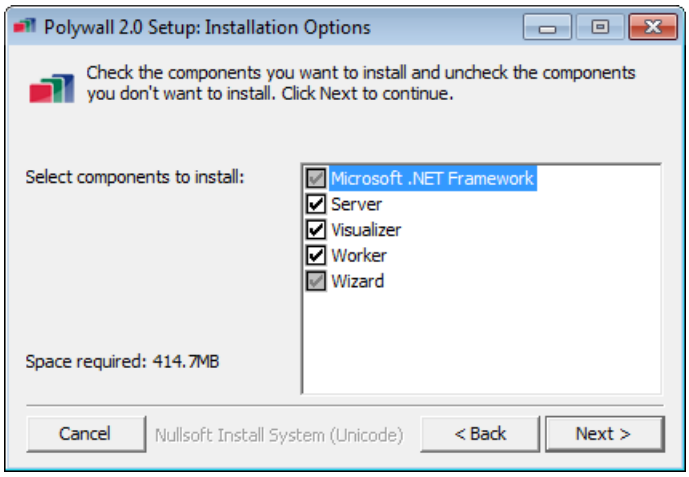
3. Select a language for the Polywall Designer interface:
   - Arabic,
   - Chinese,
   - English,
   - French,
   - German,
   - Italian,
   - Portugal,
   - Russian,
   - Spanish,
   - Turkish.



4. Choose all necessary components for installation. Wizard will only be installed with the Server.

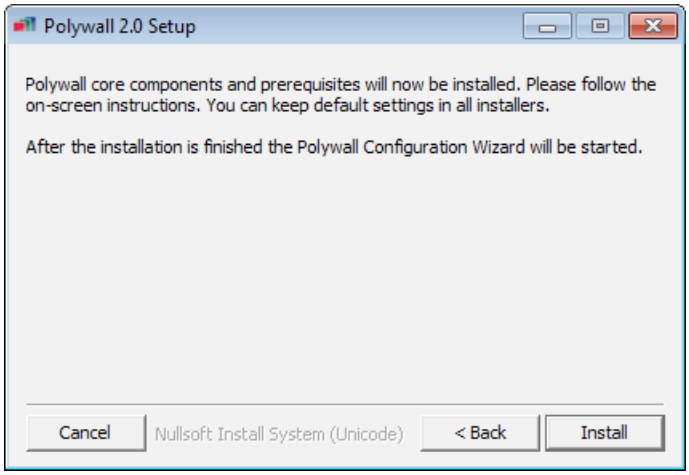
   Press '**Next**'.

   To visualize some sources, applications as follows are required: *VLC Player* and *eXPert PDF ViewerX*. If these applications are not installed on the computer, they will be installed automatically.

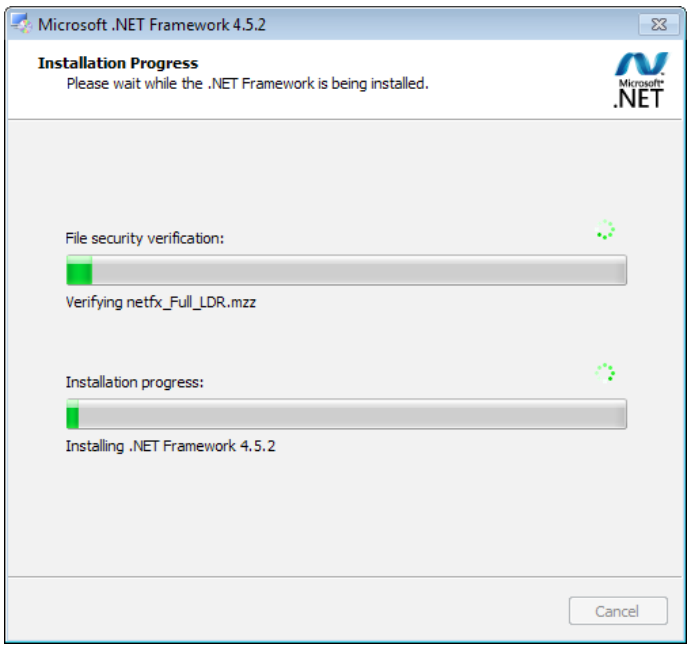


5. Please follow on-screen instructions.

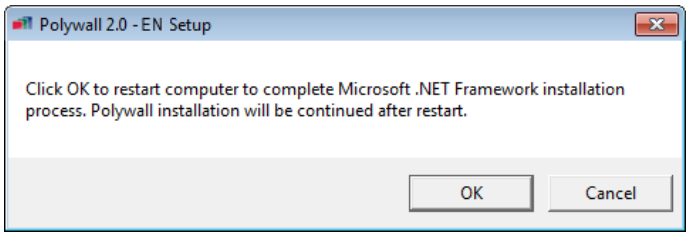
   Press '**Install**'.



6. If the *Microsoft .NET Framework* software platform, version *4.5.1* or higher, is not installed on the computer, it will be installed automatically during Polywall installation.



If such a message will pop up after *Microsoft .NET Framework* installation, press '**OK**'.

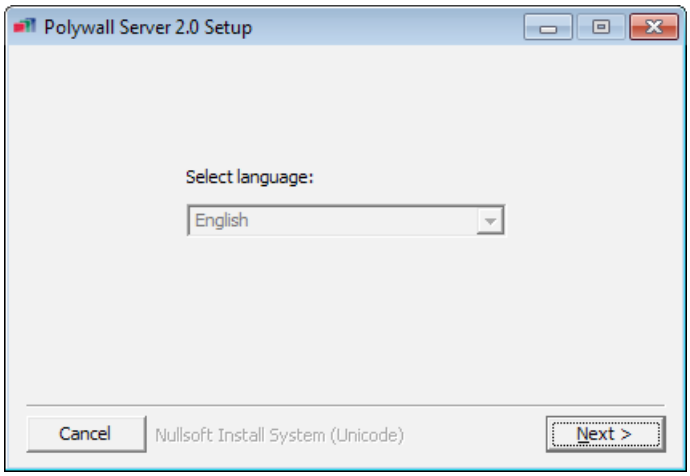


Warning! After '**OK**' is pressed, Windows will reboot. Right after system boot, the **Polywall Kit** installer will start automatically. Repeat steps 2,3,4,5. With this, Polywall installation will continue.

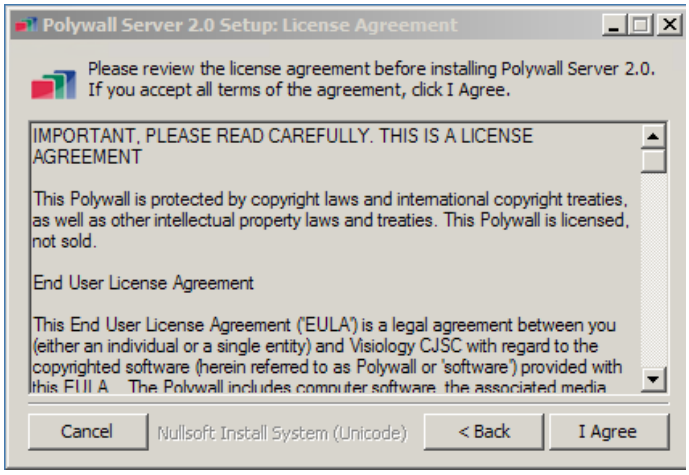
Server Installation

Install the Server using on-screen instructions:

Confirm language selection for Server installation by pressing '**Next**'.

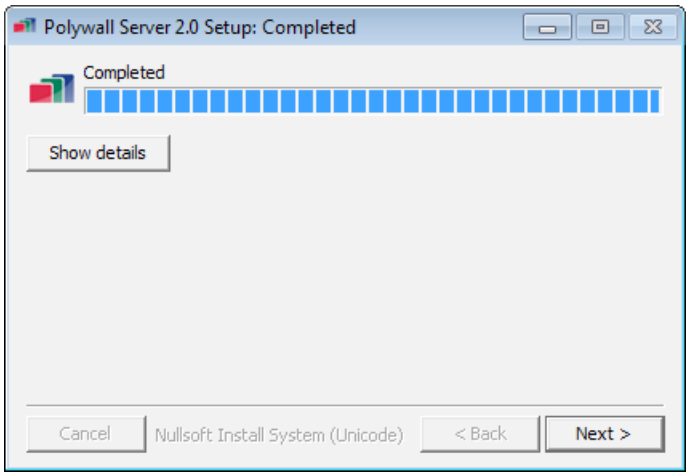


Confirm that you accept the license by pressing '**I Agree**'.

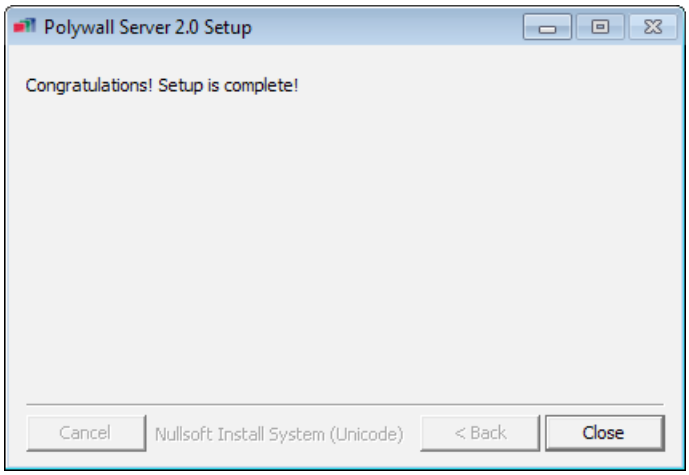


Wait till the component installation is complete.

Press '**Next**'.



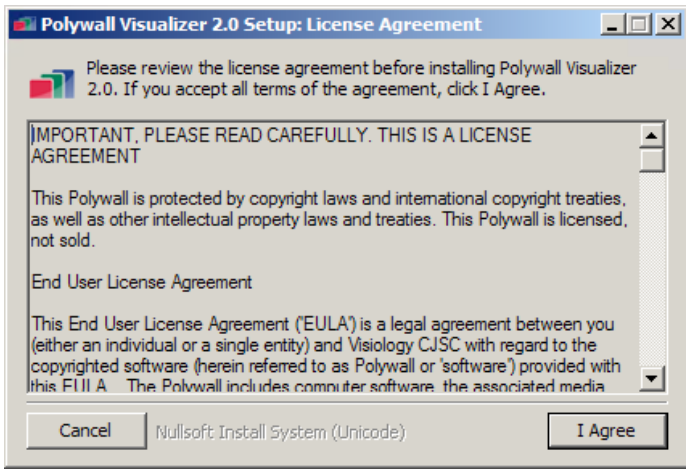
Close the Server installation window by pressing '**Close**'.



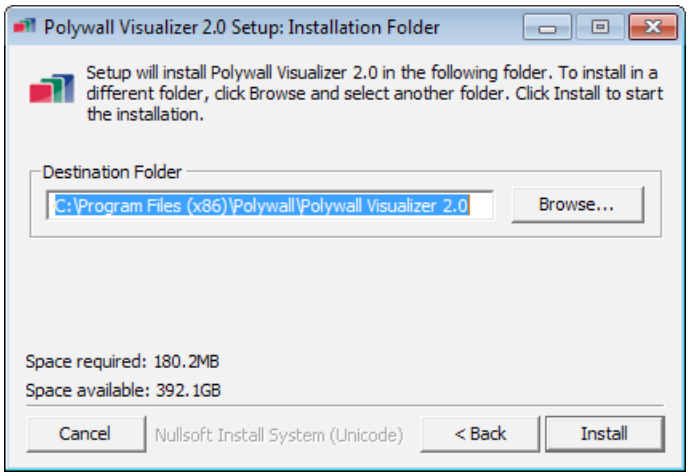
Visualizer Installation

Install the Visualizer using on-screen instructions:

Confirm that you accept the license by pressing '**I Agree**'.

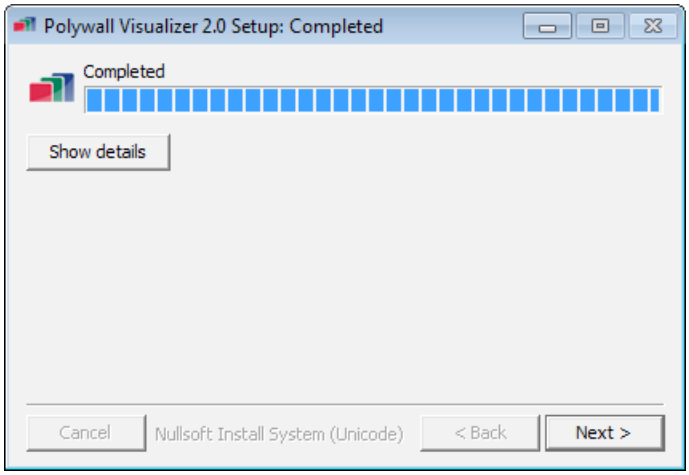


Choose a directory to install the Visualizer by pressing '**Install**'.

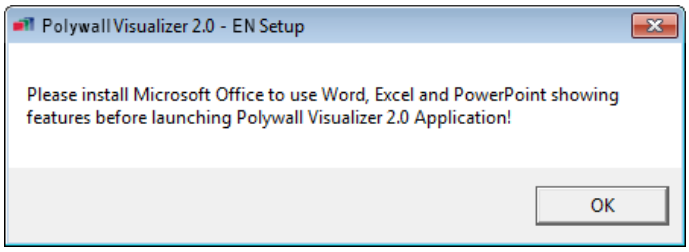


Wait till the component installation is complete.

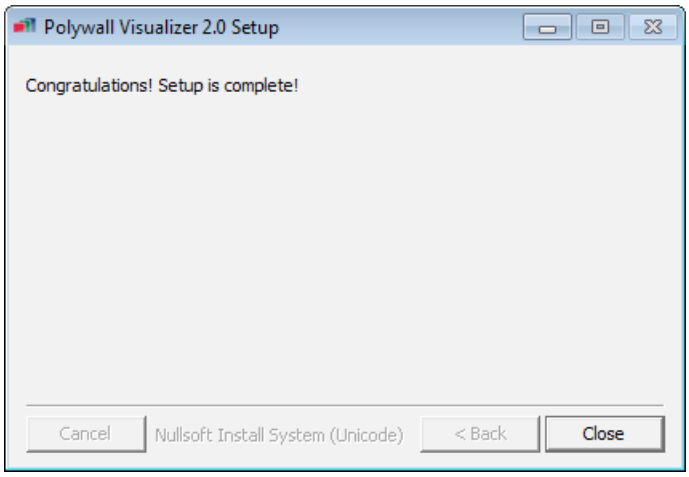
Press '**Next**'.



If such a message appears during installation, press '**OK**' and, after all the Polywall components are installed, install the *Microsoft Office 2007 – 2016*.



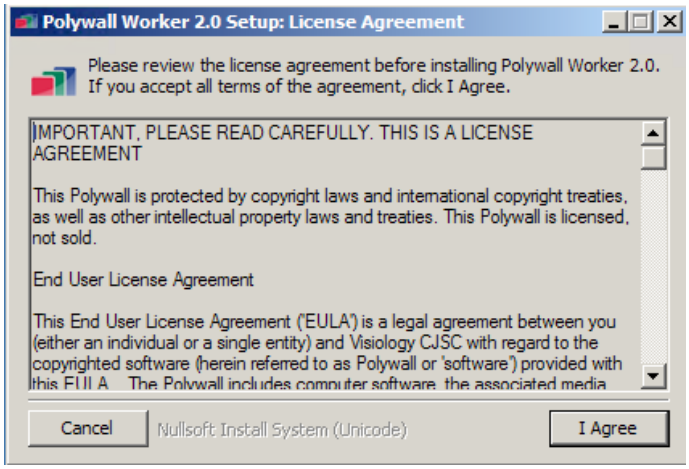
Close the Visualizer installation window by pressing '**Close**'.



Worker Installation

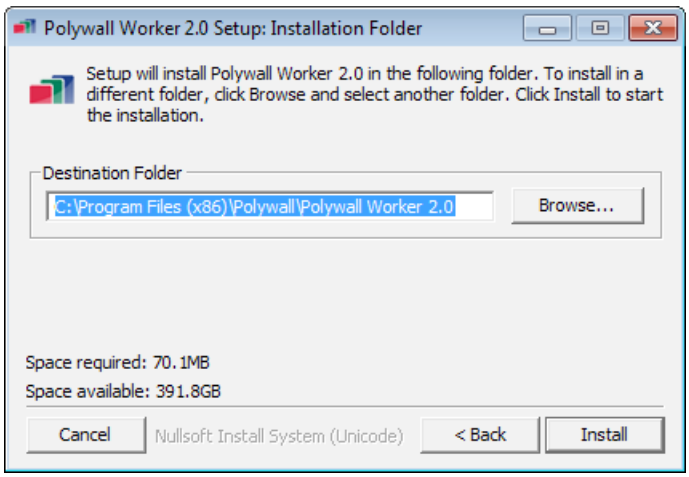
Install the Worker using on-screen instructions:

Confirm that you accept the license by pressing '**I Agree**'.



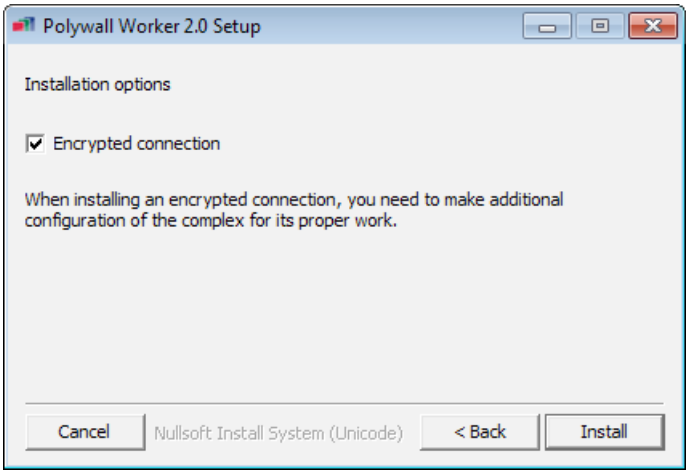
Select the directory to install the Worker.

Press '**Install**'.



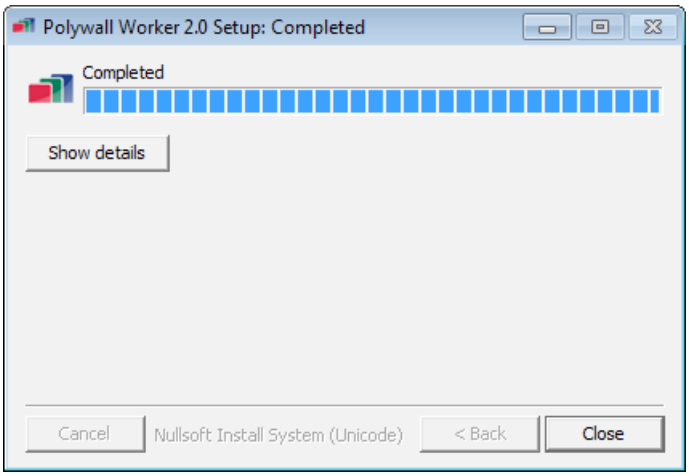
PRO **'Encrypted connection'** - establishment of secured connection (https://...). In case of encrypted connection installation Worker cannot work untill all other Polywall components will be set with encrypted connection.

Press '**Install**'.



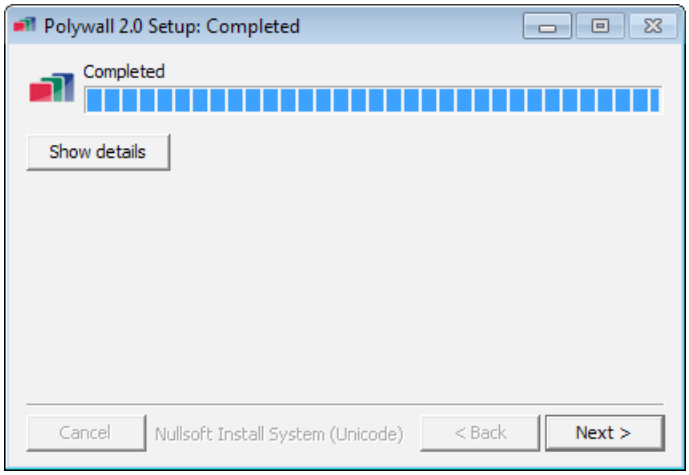
Wait till the component installation is complete.

Press '**Close**'.



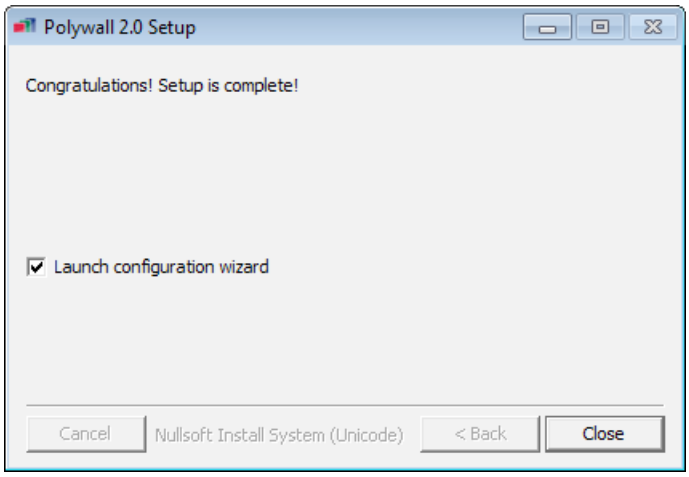
Completing Installation

Close the Polywall installation window by pressing '**Next**'.



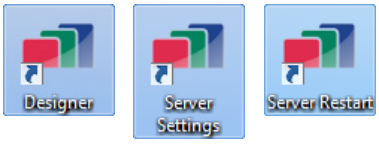
After all the Polywall components are installed, make sure that the '**Launch configurator wizard'** checkbox is selected.

Press '**Close**'.

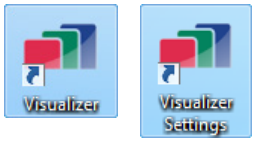


After **Polywall Kit** is installed, shortcuts will appear on the desktop:

- '**Designer'** – the web-interface loaded in *Mozilla Firefox* or *Google Chrome* for handling display facilities.
- '**Server Settings'** – Server's settings.
- '**Server Restart'** – restart the Server. After any changes in settings are made, restart the Server.



- '**Visualizer'** – start the Visualizer (if the Visualizer is already running, it will be restarted).
- '**Visualizer Settings'** – Visualizer's settings.



- '**Configuration Wizard'** – setup Wizard.

WIZARD SETTINGS

Wizard can be used to change the basic settings and restart Polywall components installed together with the Wizard.

To start Wizard, make sure that the '**Launch configurator wizard'** checkbox is selected after Polywall Kit Installation, or launch the file '**Configuration Wizard'**.

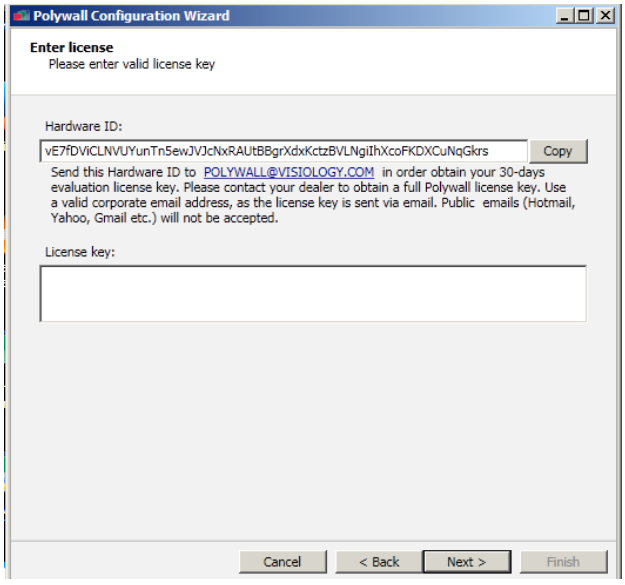
'**Polywall Configuration Wizard'** will appear on the screen.

Press '**Next'** to begin working with the configurator.

To get the license, send an email to

POLYWALL@VISIOLOGY.COM the '**Hardware ID'** that appeared on the screen. Enter the license code received in the '**License code'** field.

Press '**Next'**.



Make necessary settings to display the content on the display:

Select the number of video cubes horizontally and vertically.

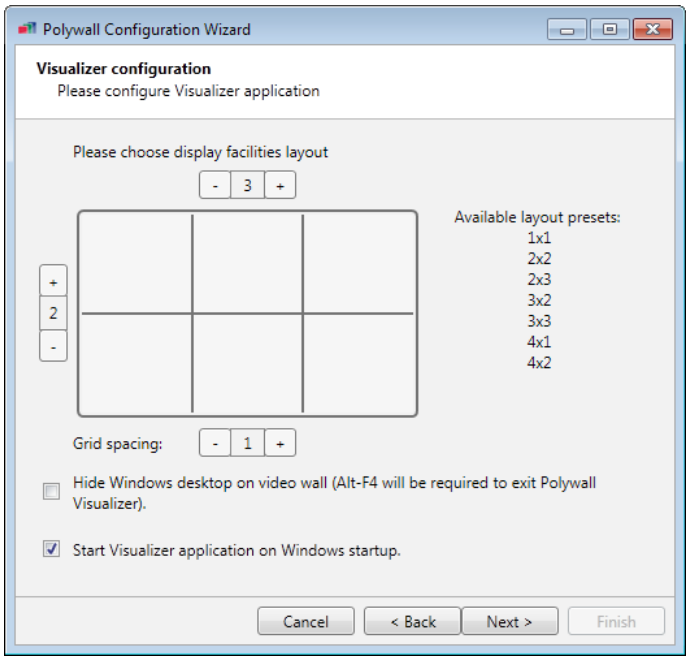
'Grid-spacing' - frequency of a grid in separate display cube.

'Video wall layout' - source displaying layout.

'Hide Windows desktop on video wall' – it allows the user to hide desktop icons and the Windows control panel, as well as to replace the background picture with the black color during Visualizer operation.

'Start Visualizer application on Windows startup' - it enables the Visualizer application to be launched when Windows starts.

Press '**Next**'.

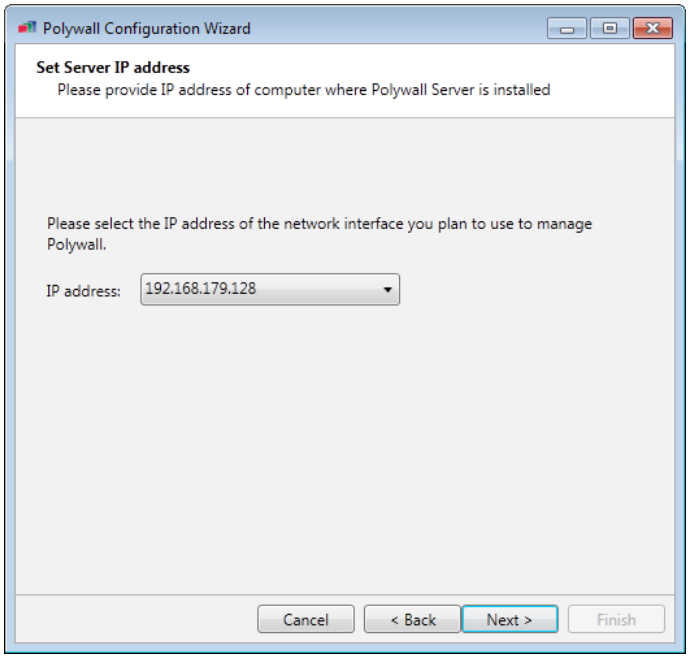


Select the Server's IP address.

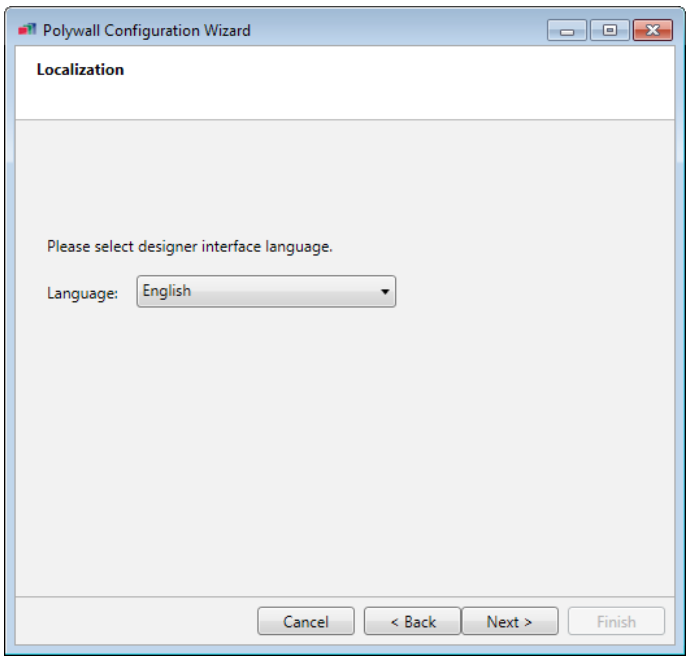
If you want to control the Server from another PC, select the IP address different from localhost ('127.0.0.1').

If Polywall components are to be installed on other computers, select that IP address which will be in the shared local network with these components.

Press '**Next**'.



Select Designer interface language.

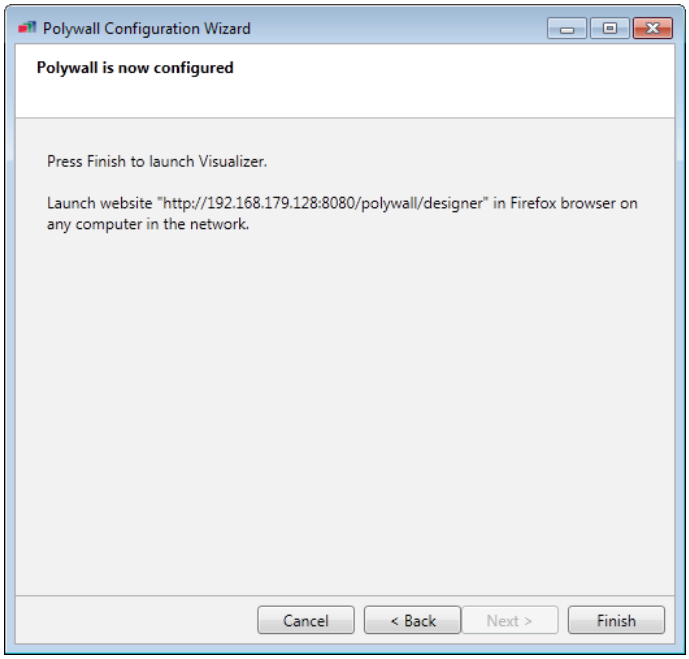


Press '**Finish'** to exit the **Polywall Configuration Wizard**.

Now you can control the content on the Server computer if the option '**Encrypted connection**' was not checked .

To manage the content on the Server display, open *Mozilla Firefox* or *Google Chrome* on any computer which is within the shared local network with the Server, and enter the following in the address bar

'http://IP-address_of_Server:8080/polywall/designer'.



Warning! To ensure correct Server operation, port 8080 should be free.

Warning! If **'Encrypted connection'** was checked, see **'Https set up'**.

SETUP OF THE POLYWALL

Server Setup

So that the Designer could run correctly, please install *Mozilla Firefox* or *Google Chrome* and make it the default browser.

To change Server settings, press the Server Settings shortcut on the desktop.

Server settings consist of 6 tabs:

'Rooms' – the tab that contains settings of the room and its equipment.

'Repositories' - the tab contains IP-addresses of computers and folder directories with required files.

'License' - the tab contains the license key and information on the quantity of days remaining until license expiration.

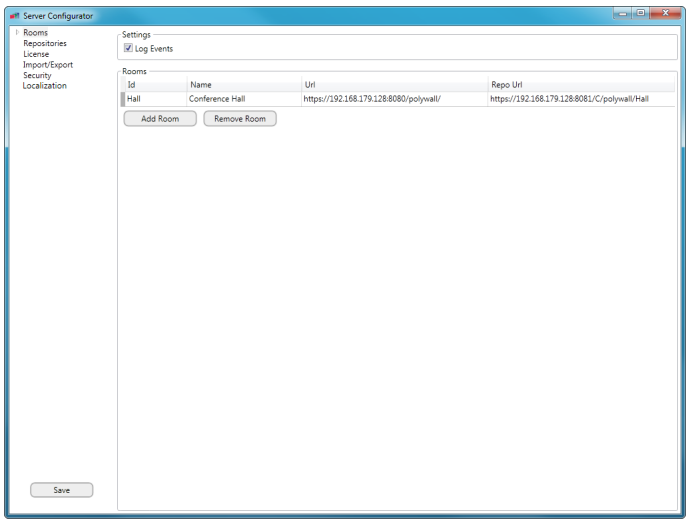
'Import/Export' - the tab contains settings import and export functions.

PRO **'Security'** - contains user access settings.

'Localization' - language configuration of the Designer interface.

Rooms

Room – is a group of one or several display facilities on which information management and demonstration can be connected logically. The feature is under development and not available now.



PRO Event logging

Check the box in field '**Log Events**' to create file with event records in date order.

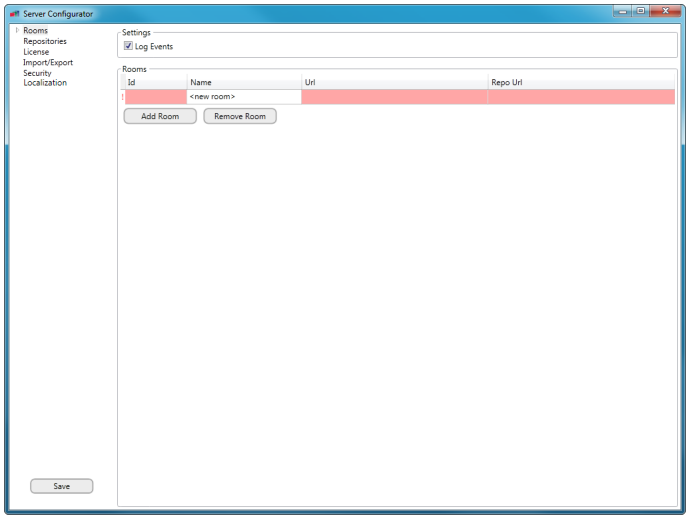
Log file with records is stored at:

'**C:\Program Files\Polymedia\Polywall Server 2.0\tomcat\logs**' .

Room settings

A **red field** means an unfilled mandatory field or a field the content of which does not comply with filling rules.

If there is a rule for filling, it will pop up when the cursor is hovered over the input field.



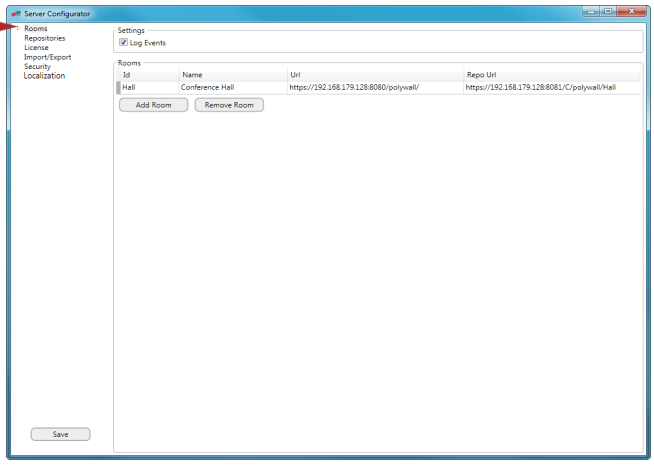
Field	Value	Filling rule
Id	Room has its unique Id. The Id is user-defined. This Id is used to establish connection between the Server and the Visualizer.	English letters and numbers
Name	Room name.	English letters and numbers
Url	The Server address to be used for Room operation (to be used for Visualizer settings). The Server address within the local network shared with the Visualizer and the Worker.	'http://IP-address_of_Server:8080/Polywall' or 'https://IP-address_of_Server:8080/Polywall' in case of secured connection at '**Security**' tab.
Repo Url	The address of a folder that will contain scenarios to be demonstrated according to the schedule in this room. 'C:/polywall/Hall' is created by default. You can create your own folder and specify a path to it.	'http://IP-address_of_Server:8081/Polywall/Directory' or 'https://IP-address_of_Server:8081/Polywall/Directory' in case of secured connection at '**Security**' tab. The Directory shall be written as 'Disk/Folder/Folder/'.

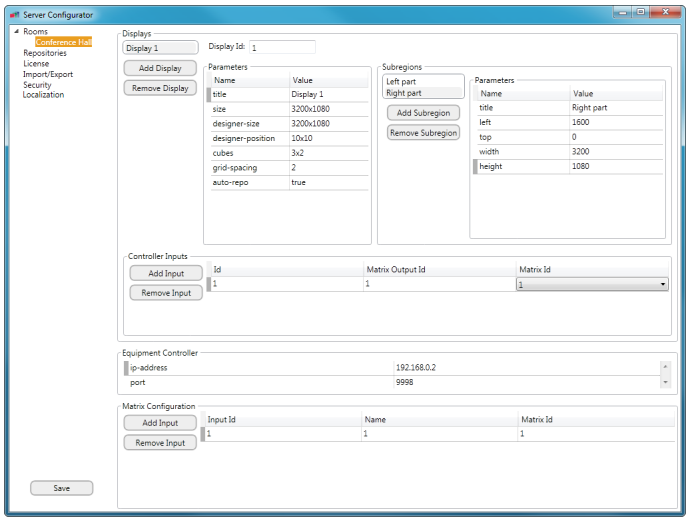
Warning! Polywall operates within one default room and there is no sense to create additional rooms!

Warning! All the fields are filled with default settings. Replace existing data with your data!

Room equipment

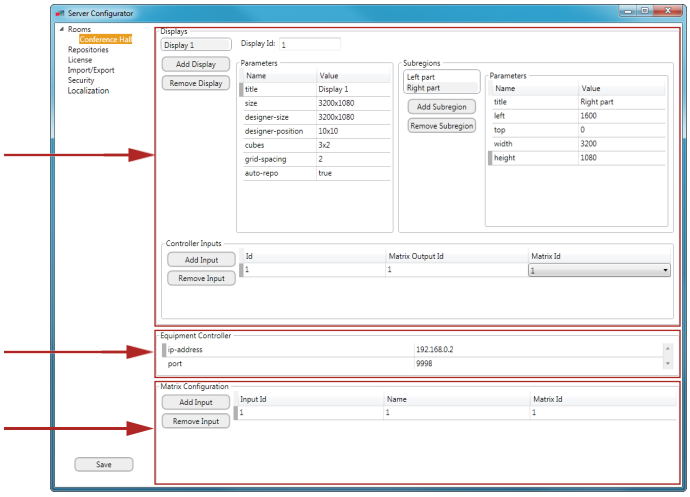
Open room equipment settings.





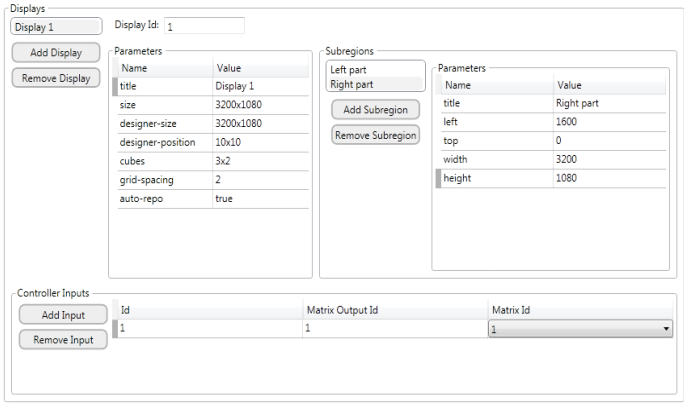
Warning! All the fields are filled with default settings. Replace existing data with your data. Fill all the fields.

A window with settings of room properties is divided into 3 sections:



- '**Displays**' – setup of parameters for the room's display facilities.
- '**Equipment Controller**' – setup of the equipment controller responsible for matrix change-over.
- '**Matrix Configuration**' – setup of switching matrices.

Displays



To add a display to the room, press '**Add Display**'. Displays mean separate video wall controllers with Polywall Visualizers with their whole video walls. It is not one physical display.

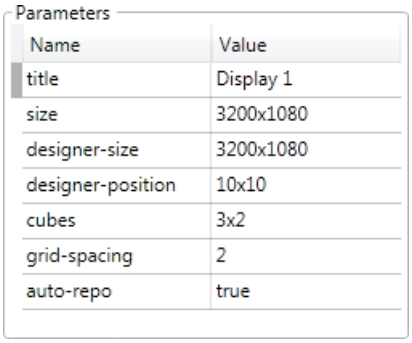
To remove the selected display, press '**Remove Display**'.

'Display Id' - you should specify the display ID (number). This Id number is used to establish connection between the Server and the Visualizer.

Warning! Make sure that there are no extra displays. Otherwise, these displays will be shown in the Designer with default settings.

'Parameters' block

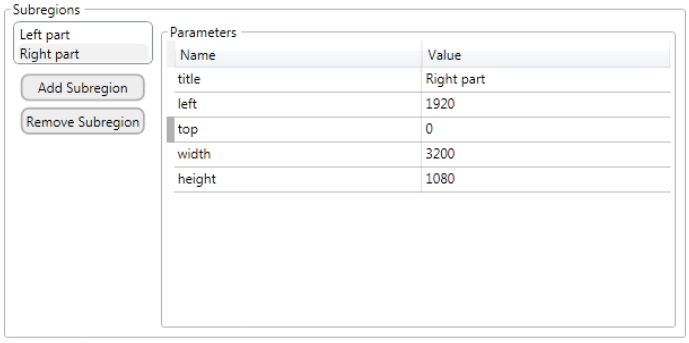
The '**Parameters**' block is responsible for properties of the display selected.



Field	Value	Filling rule
title	The display name to be shown in the Designer.	English and russian letters, numbers
size	Physical dimensions of the entire display (video wall) in pixels. (To obtain information on physical dimensions (video wall) of the entire display, right-click on the computer desktop (with the Visualizer installed) and select 'Screen Resolution').	Number x Number
designer–size	The display size in the Designer. If sizes of displays are different by several times, set equal (close) values of the parameter.	Number x Number
designer-position	Coordinate of the top left display corner in the Designer. To be defined by the user. For calculation of the top left corner coordinate for the display facility in the Designer, please see *Appendix 1*.	Number x Number
cubes	Display facility layouts. Standard layouts as follows are available: 1x1, 2x2, 2x3, 3x2, 3x3, 4x2.	Number of cubes horizontally x Number of cubes vertically
grid-spacing	The frequency of a grid in separate display cube.	Number
auto-repo	Generating of repository with display hardware inputs.	**true** or **false**

PRO Subregions

Subregions are designed to divide display into several areas.
Subregions are used for user access rights differentiation.



To add display Subregion press button '**Add Subregion**'.

To remove the selected Subregion press button '**Remove Subregion**'.

Field	Value	Filling rule
title	Subregion name.	English and russian letters, numbers
left	Original X coordinate of display Subregion.	Value (from zero to physical display width in pixel)
top	Original Y coordinate of display Subregion.	Value (from zero to physical display height in pixel)
width	Subregion width.	Value (**left**+**width** shall be less than physical display height in pixel)
height	Subregion height.	Value (**top**+**height** shall be less than physical display height in pixel)

Warning! Display size and Designer size must be the same for the correct operation of the subregions.

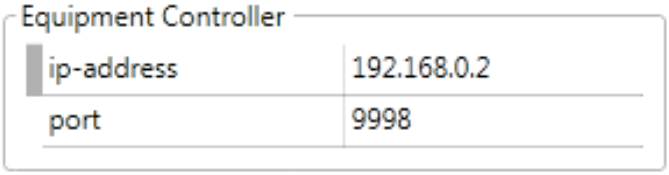
'Controller Inputs' block

See the '**Controller Inputs**' block after '*Matrix Configuration*' and '*Equipment Controller*'.

Equipment Controller

'Ip-address' – the IP address of the controller responsible for matrix change-over.

'Port' – the port of the controller responsible for matrix change-over.



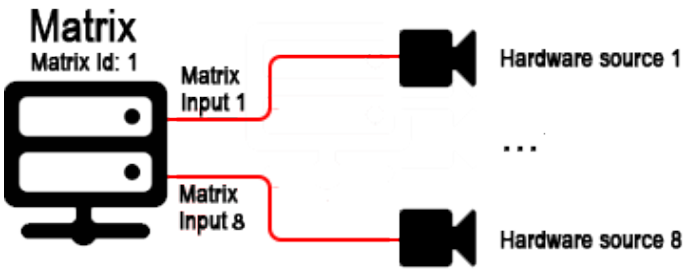
If there are no matrices, leave fields with standard settings.

Warning! Names of hardware sources connected directly to the controller can be set in the Visualizer settings.

Matrix Configuration

'Matrix Configuration' is responsible for hardware sources connected to matrices.

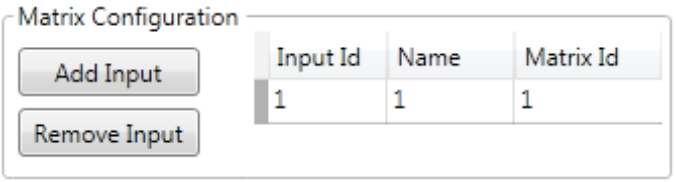
If there are no matrices, leave fields with standard settings.



Add/remove the matrix input

To add a matrix input, press '**Add Input**'.

To remove the selected input, press '**Remove Input**'.

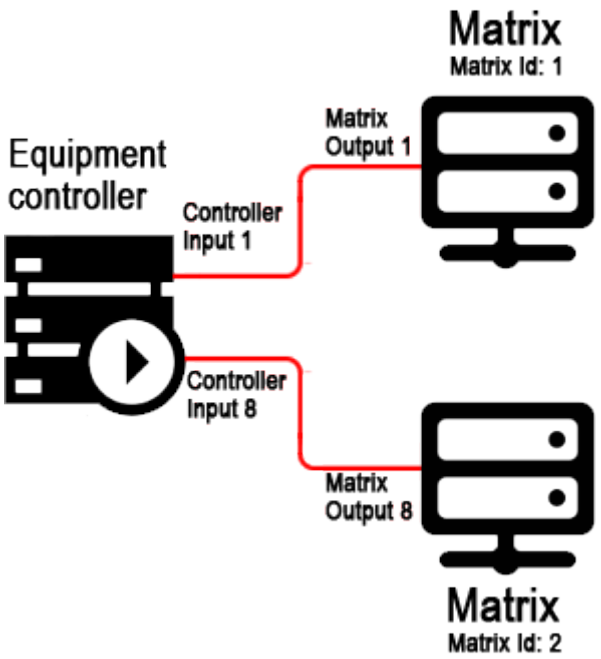


Field	Value	Filling rule
Input Id	Matrix input number.	Number
Name	Input name. This name shall be understandable, as it will be displayed when the operator works in the Designer.	English letters and numbers
Matrix Id	Matrix ID. To be defined by the user. The Id is used for Server communication with the '**Equipment Controller**'.	Number

'Controller Inputs' block

Controller Inputs – establishing links between controller inputs and matrix switch outputs. Polywall on Matrox graphic cards is supported.

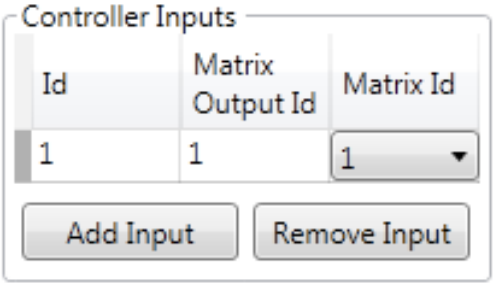
The **Controller Inputs** block contains nothing if there are no matrices.



Add/remove the link between a controller input and a matrix output

To add a link, press '**Add Input**'.

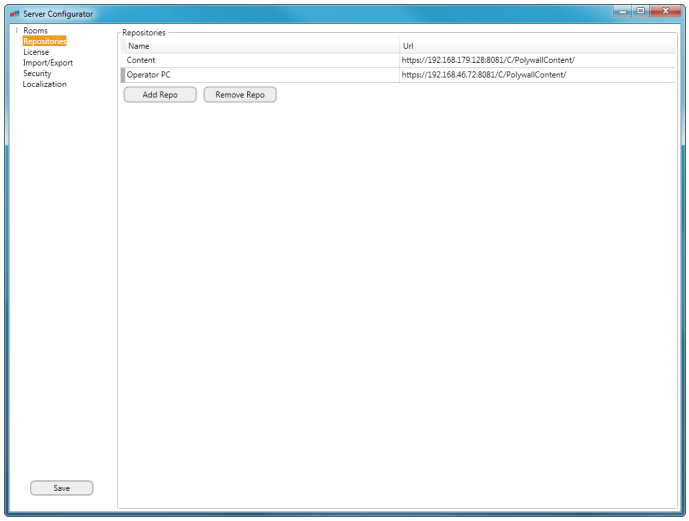
To remove the selected link, press '**Remove Input**'.



Field	Value	Filling rule
Id	Controller input number.	Number
Matrix Output Id	Matrix output number.	Number
Matrix Id	ID of this matrix.	Number

Repositories

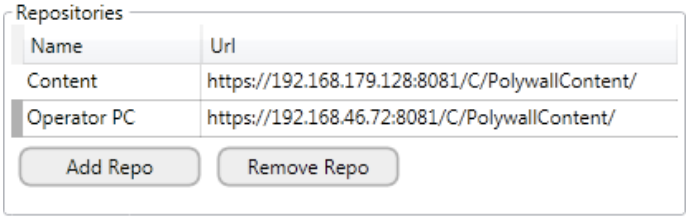
Specify the computer IP-address and a path to the folder/disk required (the Worker shall be installed on the computer) to show later files in these repositories on displays.



Add/remove the Repository

To add a repository, press '**Add Repo**'.

To remove the selected repository, press '**Remove Repo**'.

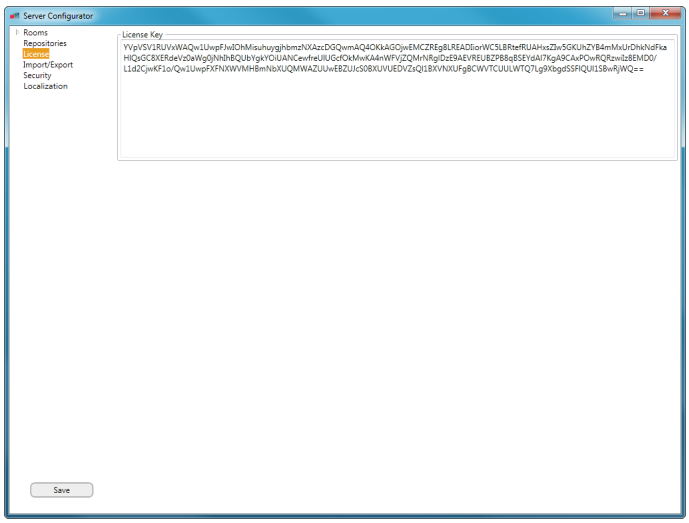


Field	Value	Filling rule
Name	The file storage name to be displayed when the operator works in the Designer.	English letters and numbers
Url	An address of the computer the Worker is installed on.	• Software sourses: 'http://IP-address_of_Worker:port/Directory' or 'https://IP-address_of_Worker:port/Directory' in case of secured connection at '**Security**' tab. The Directory shall be written as 'Disk/Folder/Folder/'.

License

A license key received from the Polywall specialist is located in the '**License Key**' field on the '**License**' tab.

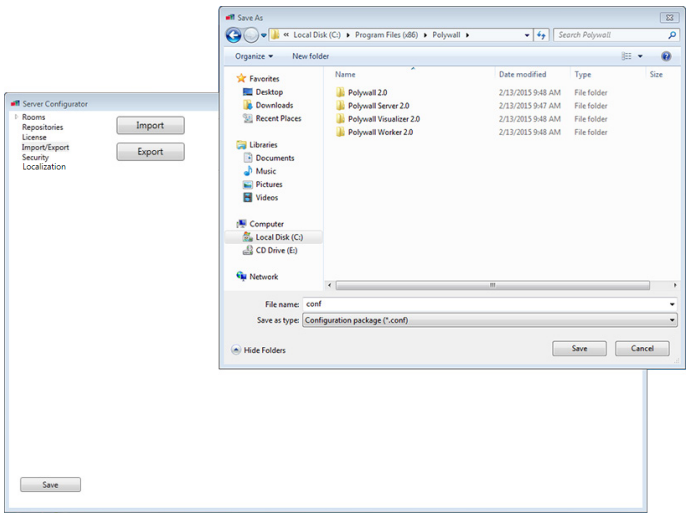
In case of using trial key, amount of remaining days will be displayed in red (near the field with licence key).



Import/Export

Export the settings

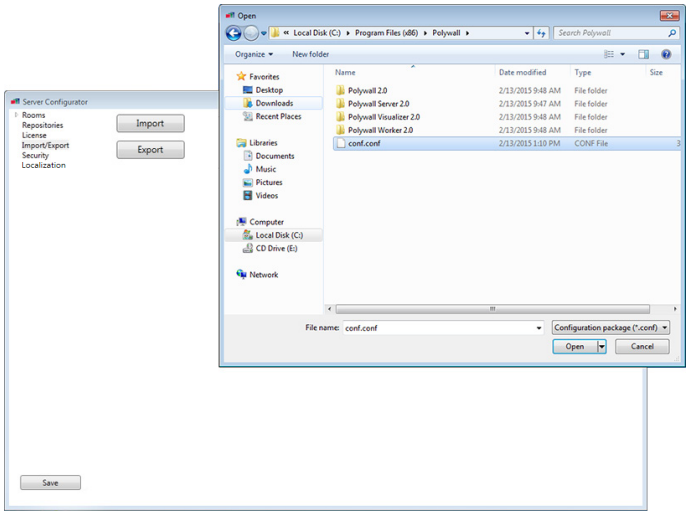
1. Press '**Export**'.
2. Select the directory to save existing Server settings, enter a file name and press '**Save**'.



Warning! When copied settings are transferred, the license key will not be valid on another PC.

Import the settings

1. Press '**Import**'.
2. Select a file with settings - a file of the '***.conf**' format.
3. Press '**Open**'.



Warning! Do not recommended to Import the settings from different version.

PRO Security

Secured connection

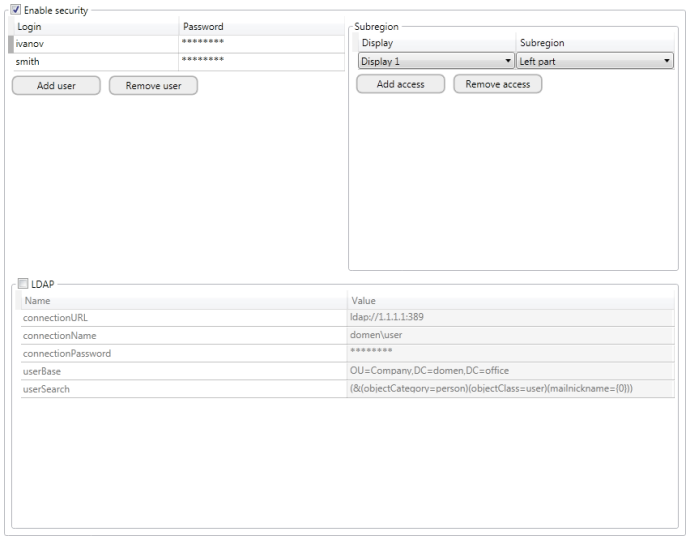
Check the box '**Enabled**' in '**Encrypted connection (https)**' block.

Enable security

Check the box '**Enable security**' to change user access settings.

Settings contain:

- list of users and their display control rights
- LDAP settings (when LDAP password is to be used for user log-in in Designer Polywall).



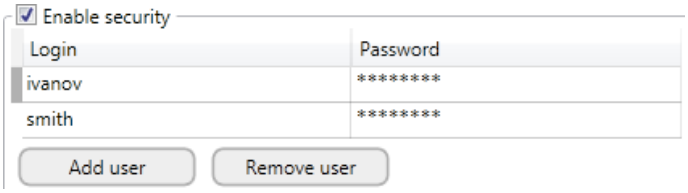
Warning! If the box '**Enable security**' is checked, Designer Polywall interface will be loaded only after user log-in!

Add/remove user account

To add user account press '**Add User**'.

To remove the selected user account press '**Remove User**'.

Enter password to enable each account or set parameters to use LDAP authorization.



If LDAP authorization is used, account login shall match Active Directory login.

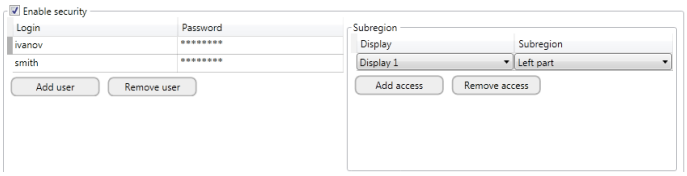
Field	Value
connectionURL	Url for connection to domain controller (AD server).
connectionName	User name for connection to AD server.
connectionPassword	User password for connection to AD server.
userBase	Active Directory element filtering parameters.
userSearch	Search pattern to select user name.

Add/remove user constraints

To add constraints to the selected user account press '**Add Access**'.

Select relevant display and name of subregion the user can control.

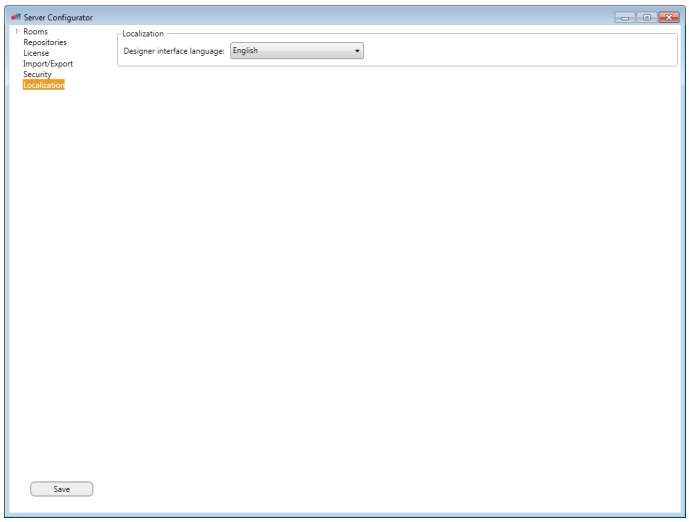
To remove constraints from the selected user account press '**Remove Access**'.



Warning! If account is added but constraints are not defined, the user will be able to control all available displays!

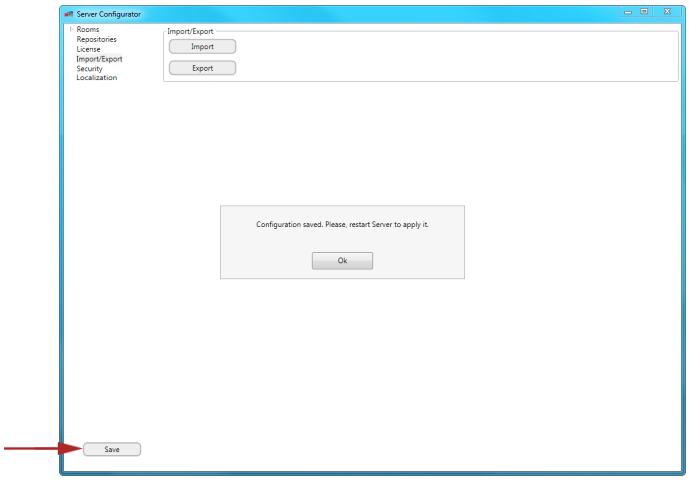
Localization

Select Designer interface language.



Save the Server settings

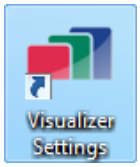
To save settings, press '**Save'** in the left bottom corner and restart the Server.



Warning! After settings are saved, restart the Server by pressing '**Server Restart**'.

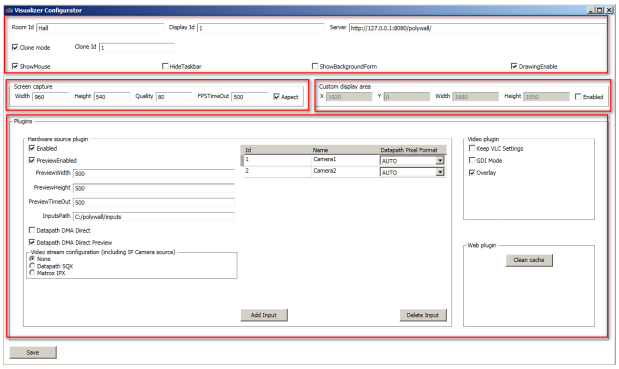
Visualizer Setup

To change Visualizer settings, press the '**Visualizer Settings**' icon on the desktop.

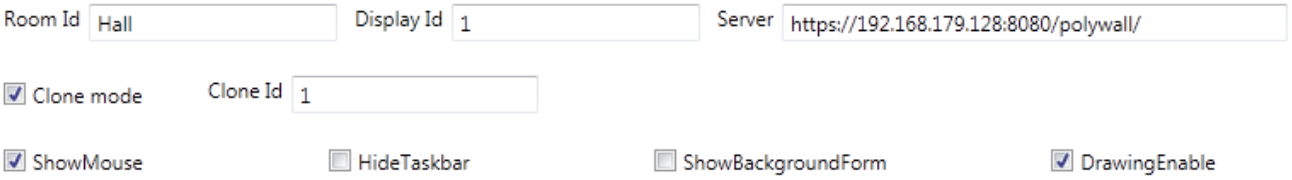


The Visualizer settings interface is divided into 4 parts.

- General settings.
- '**Screen capture**' - To set up transfer of the display desktop image.
- '**Custom display area**'- Visualizer capture area.
- '**Plugins**' - To set up plug-ins.



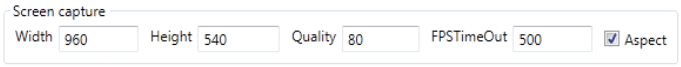
General settings



Field/Checkbox	Value
Room Id	It corresponds to the '**Id**' value in the '**Rooms**' section of Server settings.
Display Id	It corresponds to the '**Display Id**' value in the '**Rooms**' section of Server settings.
Server	The Server IP-address within one local network (*see Url of the Rooms tab*).
PRO **Clone mode**	Enable Hot Standby feature.
PRO **Clone Id**	Visualizer switch priority under hot standby.
ShowMouse	A function of mouse cursor display when the Visualizer is running.
HideTaskbar	It enables the user to hide the desktop task bar when the Visualizer is running.
ShowBackgroundForm	It allows the user to hide desktop icons and the Windows control panel, as well as to replace the background picture with the black color during Visualizer operation.
DrawingEnable	A possibility to draw on the display from the Designer.

Screen capture

To transmit the image, a screen capture mechanism and conversion of this image to jpeg are used.

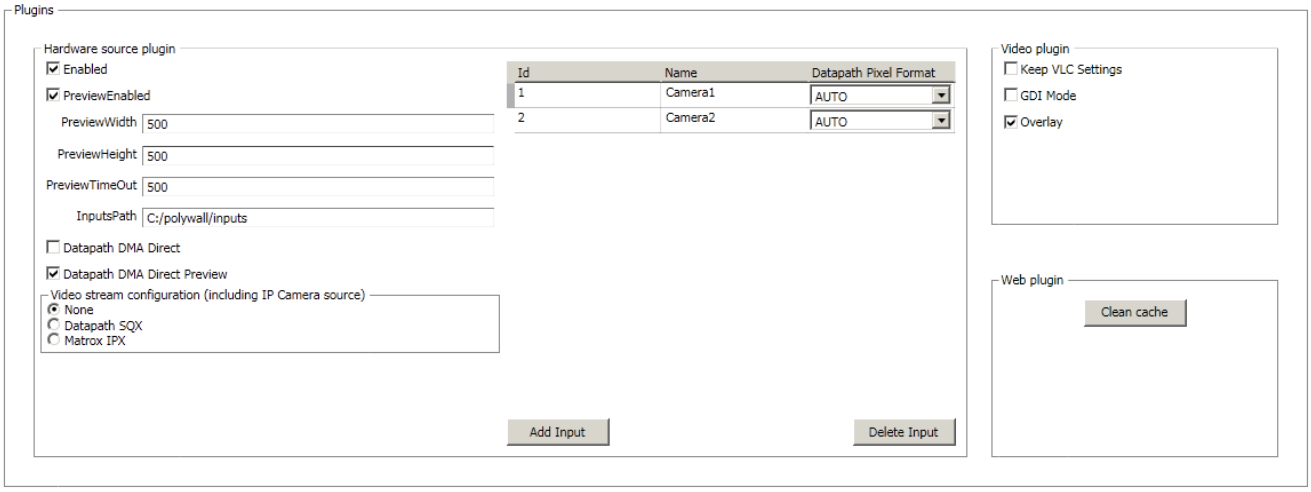


Field/Checkbox	Value
Width	The width of the display facility desktop image to be transmitted to the Designer.
Height	The height of the display facility desktop image to be transmitted to the Designer.
Quality	The quality of the display facility desktop image to be transmitted to the Designer It accepts values of 0 to 100, where 100 is the best quality.
FPSTimeOut	A delay until the display facility screen shot is received. We recommend setting values 200 – 1000 (milliseconds).
Aspect	Save proportions.

Visualizer custom capture

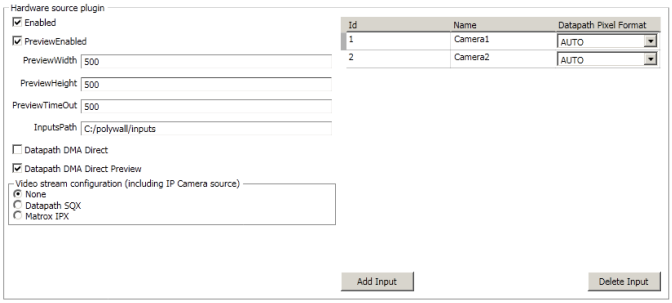
Field/Checkbox	Value
X and Y	The upper left point coordinates of Visualizer capture frame.
Width	The width of Visualizer capture frame.
Height	The height of Visualizer capture frame.
Enable	Enable/Disable custom VIsualizer area.

Plugins



Hardware source plugin

The display plug-in of hardware sources at the controller input (of the display facility). **Datapath** (VisionSC Range, VisionAV Range, ActiveSQX card), **Matrox** (Mura MPX cards, Mura IPX cards, C-series graphic cards) capture cards are supported.



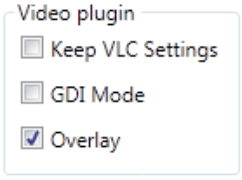
Field/Checkbox	Value
Enabled	Enable/disable the plug-in
PreviewEnabled	Preview of the source image on the desktop screen shot (it is not displayed by default).
PreviewWidth	Preview image width.
PreviewHeight	Preview image height.
PreviewTimeOut	The delay time before the source image is received.
InputsPath	The folder where the Visualizer creates a source corresponding to the controller input.
Datapath DMA Direct	Use the **Datapath** input card. **'True'** – data transmission directly to the graphic card; **'False'** – data transmission via the system memory.
Datapath DMA Direct Preview	Obtain the Preview of the **Datapath** card. **'True'** – to obtain Preview directly by the graphic card; **'False'** – to obtain Preview via the system memory.
Datapath Capture Format	Support for YUV, RGB 5:5:5, 5:6:5, Grey and 8:8:8.
Video stream configuration	Enable hardware encoding on Datapth SQX or Matrox IPX capture cards.

Field	Value
Id	Number of the controller hardware input.
Name	The name of the controller hardware input (to be used to create a respective file in the '**Inputspath**' folder).
Datapath Pixel Format	Change capture format for every capture card input. It can solve bad image quality in some cases.

Video plugin

Plugin settings for video file display.

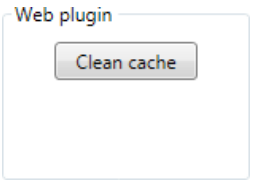
The VLC player platform is used.



Checkbox	Value
Keep VLC Settings	Use the player settings set from outside.
GDI Mode	Display the Windows GDI-interface video. If GDI Mode is not selected, DirectX is used.
Overlay	Use hardware acceleration when displaying the video.

Web plugin

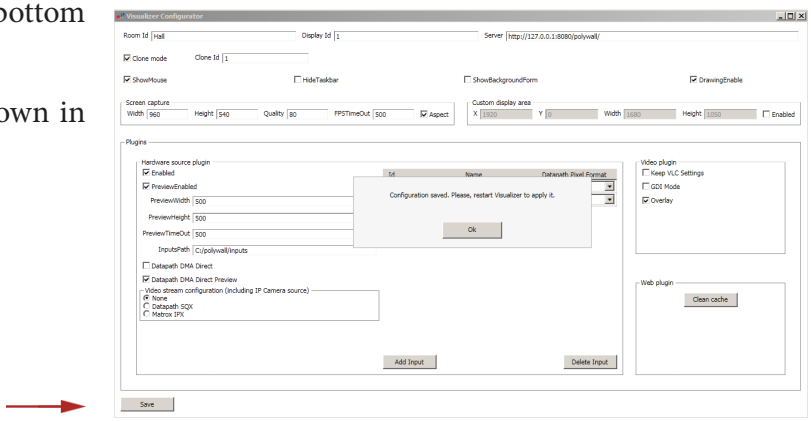
Possibility to clean cache (cookie) for all web sources.



Save the Visualizer settings

To save settings, press '**Save'** in the left bottom corner.

After started, the Visualizer will be shown in the tray.



Warning! After all the Visualizer settings are saved, rerun Visualizer.

PRO HTTPS SET UP

To configure Polywall secure connection:

1. Check '**Encrypted connection**' parameter during the installation of the Worker application.

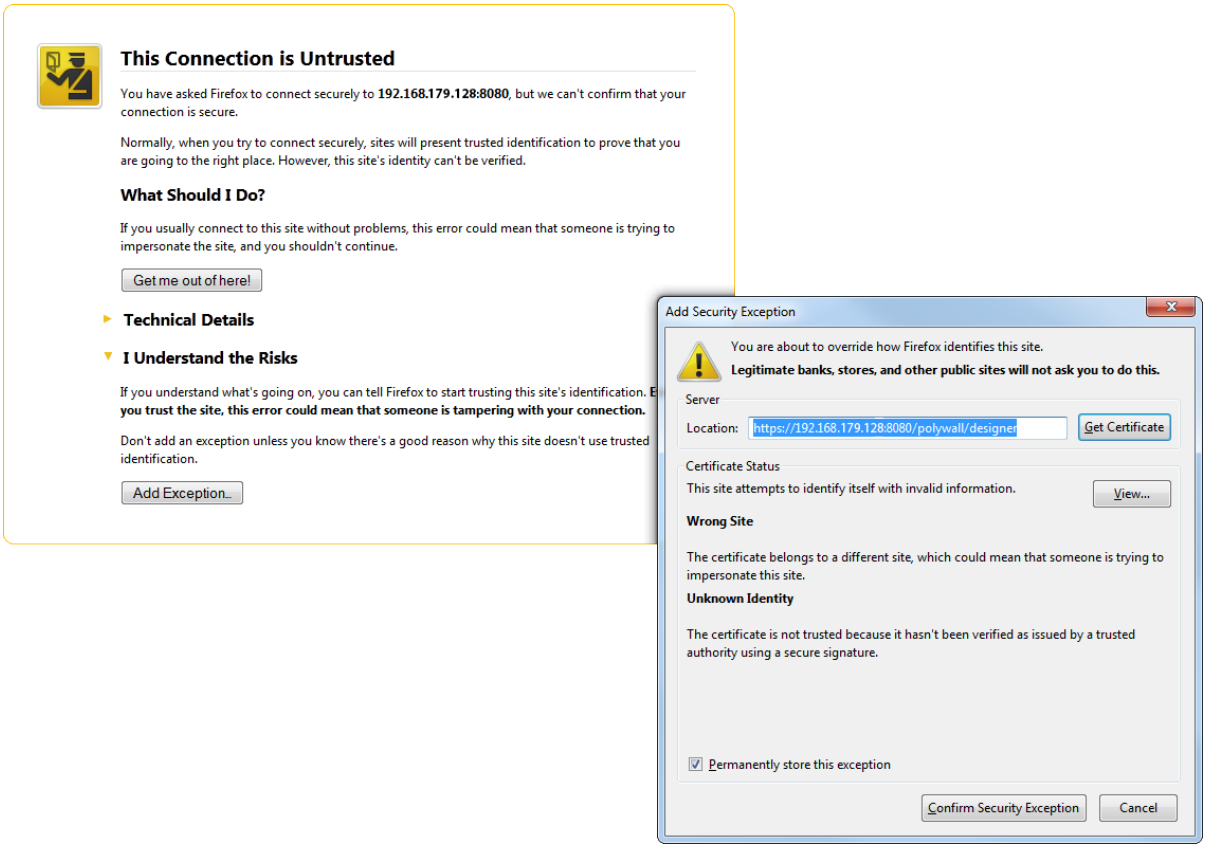
Server settings:

2. Establish secure connection to the Server (check '**Enabled**' parameter in the '**Security**' tab in the '**Encrypted connection (https)**' section in the Server settings).
3. The '**Url**' value in '**Repositories**' tab must be set as '**https://...**' .
4. The '**Url**' and '**Repo Url**' value in '**Rooms**' tab must be set as '**https://...**' .
5. Set up Visualizer secure connection: the '**Server**' value must be set as '**https://...**' .

After that open *Mozilla Firefox* or *Google Chrome* browser at any PC (linked to local network with Server) and type in URL

'**https://<Ip-address_of_Server>:8080/polywall/designer**'.

Security alert will be displayed.
Press '**I Understand the Risks'**, then press '**Add Exception…'** and '**Confirm Security Exception'**.



Warning! Establishment of ensured connection of Worker and Server shall match!

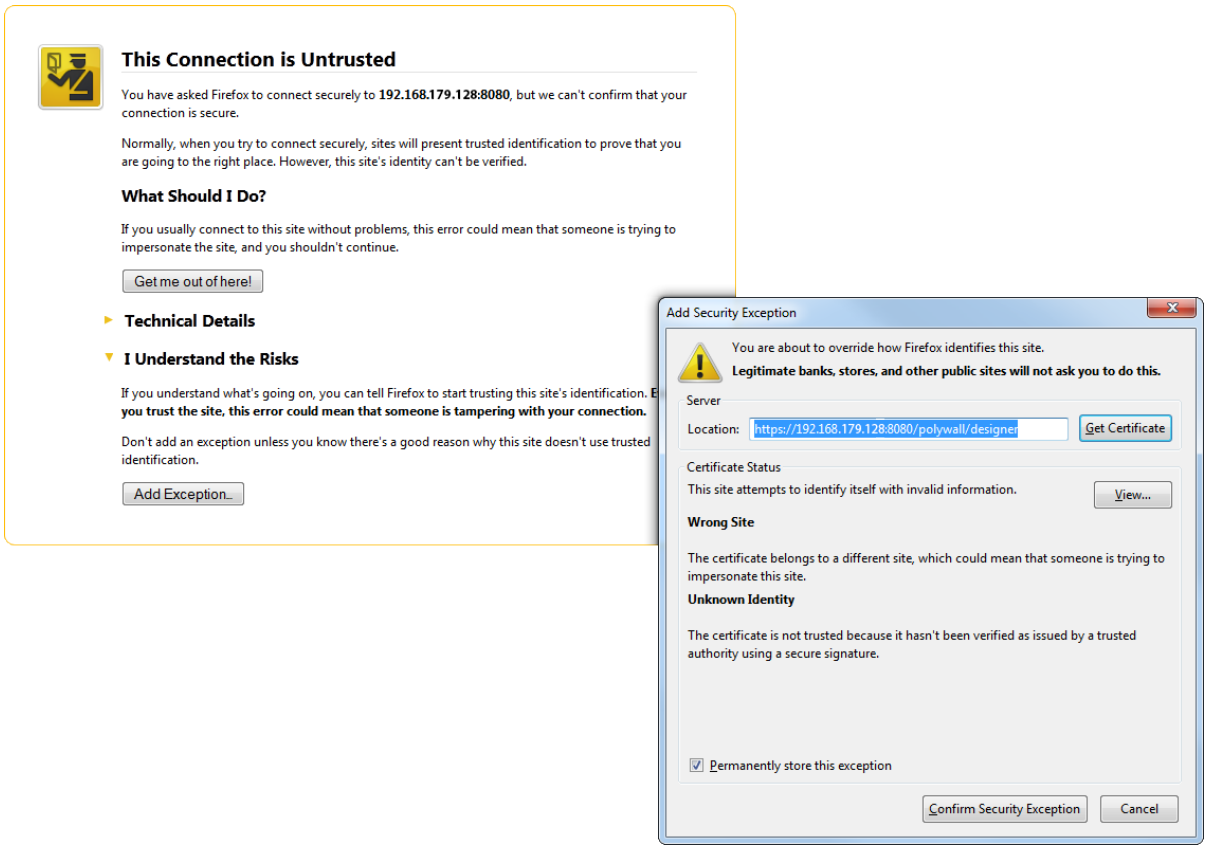
Warning! After changes to Server settings are made, restart the Server.

Warning! After changes to Visualizer settings are made, restart the Visualizer.

To access files when establishing ensured connection in Worker type

'**https: //< IP-address_of_Worker>:8081**'.

Security alert will be displayed.
Press '**I Understand the Risks'**, then press '**Add Exception…'** and '**Confirm Security Exception'**.



VIEW THE SETUP RESULT

To view the Polywall setup result, open *Mozilla Firefox* or *Google Chrome* on any computer (within the shared local network with the Server) and enter the following in the address bar

'**http://<Ip-address_**of**_Server>:8080/polywall/designer**' .

or

'**https://<Ip-address_**of**_Server>:8080/polywall/designer**' (for secured connection).

Warning! After changes to Server settings are made, restart the Server.

Warning! After changes to Visualizer settings are made, restart the Visualizer.

APPENDIXES

1. Calculation of the top left corner coordinates for the display facility in the Designer

Designer–position allows allocation of several display facilities in a control-friendly form.

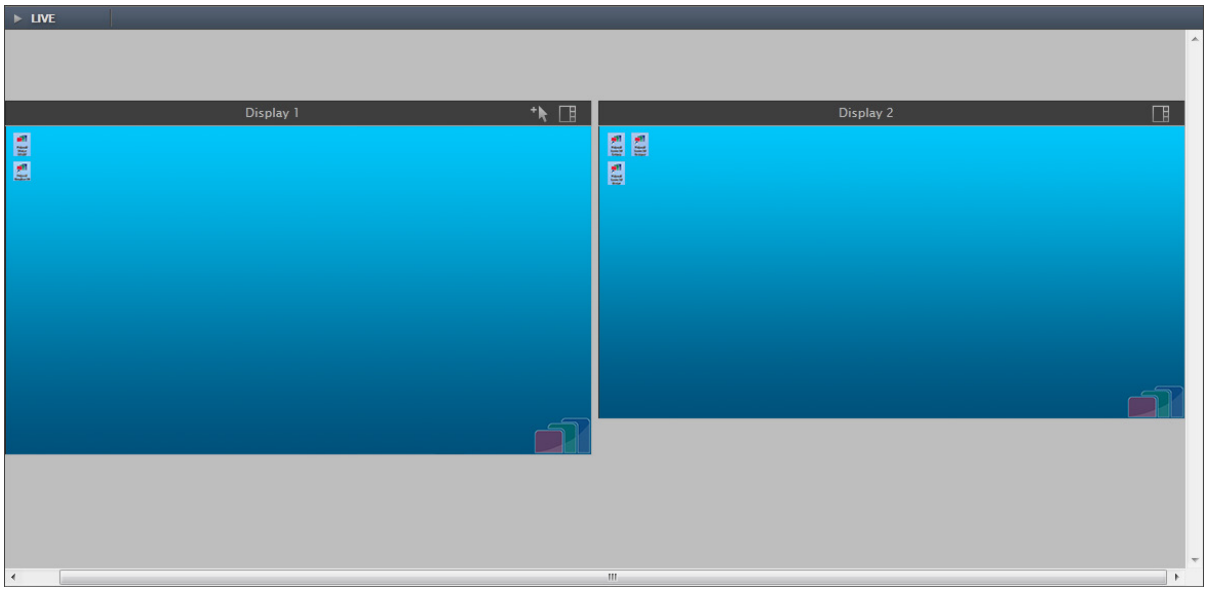
Designer–position first display:

1. Define X- and Y-direction indent of display from Designer edge. For example, 10x10.

2nd display positioning:

1. 1st coordinate (X-axis) = $\left\{\begin{array}{c} X-direction\ indent\ of\ 1st\ display\ from\ Designer\ edge \\ + \\ 1st\ display\ width\ in\ Designer \\ + \\ 2nd\ display\ indent\ from\ 1st\ display \end{array}\right\}$

2. 2nd coordinate (Y-axis) = $\left\{\begin{array}{c} Y-direction\ indent\ of\ 1st\ display\ from\ Designer\ edge \\ + \\ 1st\ display\ height + 2nd\ display\ indent\ from\ 1st\ display \\ (if\ 2nd\ display\ is\ under\ 1st\ display) \end{array}\right\}$



Entered coordinates change scale of display image; however, display name area and file control menu remain unchanged.

2. How to play YouTube videos directly

1. Open desired video in YouTube.

2. Click «**Share**» under the video.

3. Choose «**Embed**».

4. Copy the link without quotes and other additional symbols, for example, **https://www.youtube.com/embed/XvB7hOY9m90**

5. Add special parameters for hiding menu, bars and autoplaying to the link: **https://www.youtube.com/embed/XvB7hOY9m90?controls=0&showinfo=0&autoplay=1&autohide=1**. For example: **https://www.youtube.com/embed/XvB7hOY9m90?controls=0&showinfo=0&autoplay=1&autohide=1%20%3Chttps://www.youtube.com/embed/XvB7hOY9m90?controls=0&showinfo=0&autoplay=1&autohide=1%3E**

6. Open Polywall Designer, create Web page source, paste the final link and put the source on the video wall.

3. Polywall TCP port numbers

8080 – Polywall Server and Polywall Designer (control web interface).

8081 – Polywall Worker.

8086-8087 – Polywall Visualizer.

9998-9999 – Equipment controller (Crestron/AMX).

5900 – Polywall Agent.

4. Custom Visualizer capture area setup

1. Open Display settings in Polywall Server configurator and set desired capture resolution in size field.

2. Open Visualizer configurator and set start point and dimensions of Visualizer capture area. Dimensions are equal to resolution in Server settings.

3. Save and restart Server and Visualizer.